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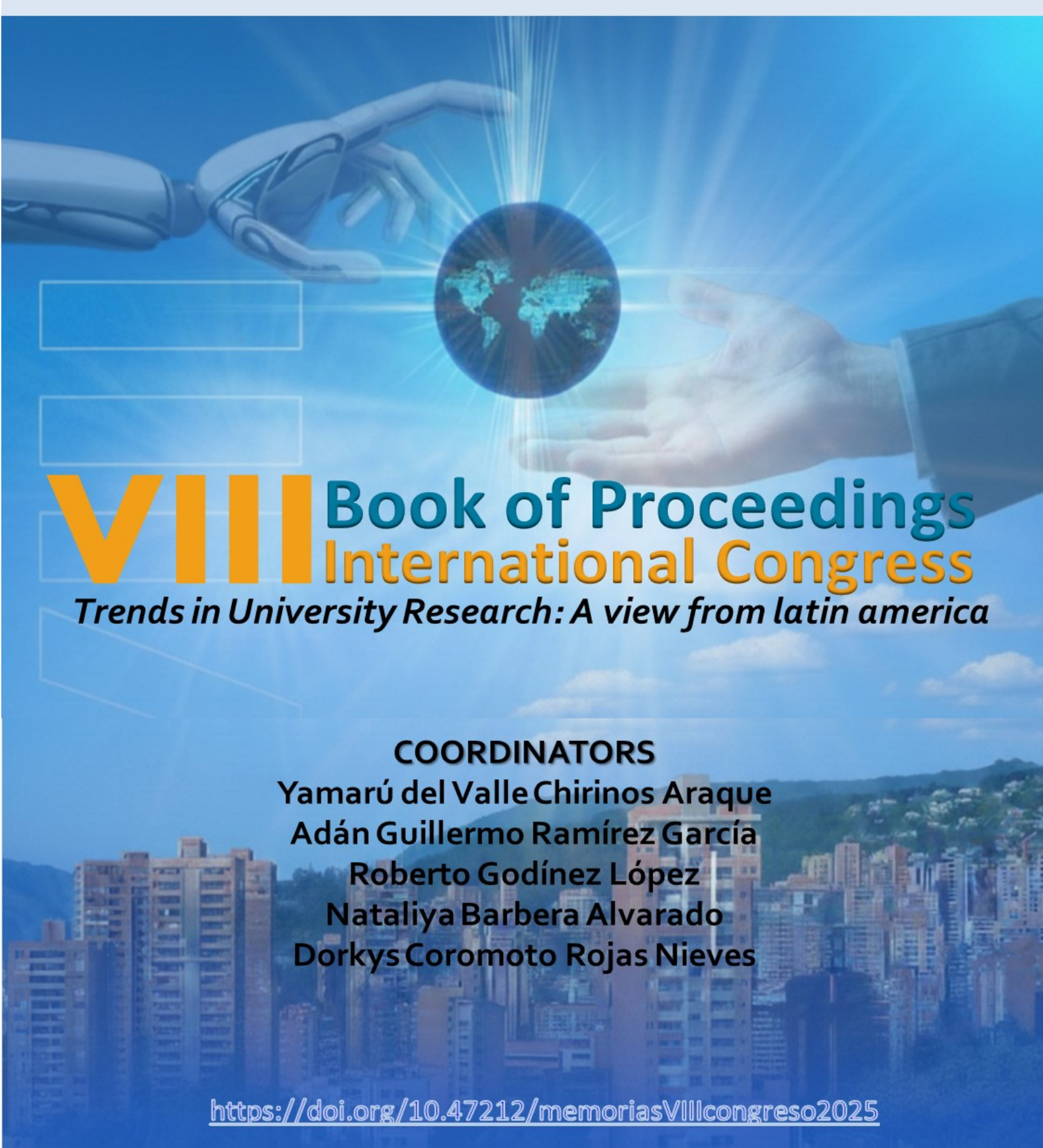


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VIII Book of Proceedings International Congress

Trends in University Research: A view from latin america

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VIII Book of Proceedings International Congress *Trends in University Research: A view from latin america*

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CIRCULAR ECONOMY-GENOMIC MEDICINE- RURAL ENTREPRENEURSHIP- RURAL FEMALE ENTREPRENEURSHIP- READING COMPREHENSION- AUGMENTED REALITY- STRATEGIC PLANNING- LOGISTICS- SUSTAINABLE DEVELOPMENT-SABER PRO TESTS- POTABILITY, MICROORGANISMS- VIRTUAL CLASSROOMS- CRITICAL APPROACH- POPULAR ECONOMY- PATHOGENS- BALASSA INDEX- STUDY HABITS-CONTINUOUS IMPROVEMENT- SUSTAINABILITY- MILLENNIALS- SIX SIGMA- TECHNICAL EDUCATION- RFID TECHNOLOGY- STRATEGIC MANAGEMENT- INDIGENOUS ENTREPRENEURS- AGRICULTURAL- MANGO- INFORMAL CREDIT-RICE HUSK- PROCHILODUS MAGDALENE-LAW 1480- ARTIFICIAL INTELLIGENCE-DECENT WORK- MENTAL FATIGUE-LOGIT MODEL- PEDAGOGÍA CRÍTICA-GASTRONOMY-TOURISM-ADDICTION- INTERNET- NOMOPHOBIA- URBAN SETTLEMENTS- VICTIMS, SEXUAL VIOLENCE- YOUTH,-LABOR MARKET-CONSUMER BEHAVIOR-DEFORESTATION- HYDROELECTRIC RESERVOIR-CACAO-CHOCOLATE VALUE CHAIN,- INTEGRATION- LEARNING ANALYTICS- STATISTICS- COMMUNITY ACTION BOARDS-MAINTENANCE STRATEGY- ENERGY SUPPLY- AGRIBUSINESS- AGRIBUSINESS FINANC-RESONANT LEADERSHIP- REPORTES DE SOSTENIBILIDAD- HERITAGE, TRADITION, ARCHITECTURE- CIRCULAR ECONOMY, SUSTAINABLE DEVELOPMENT- Grupos de investigación de: Universidad Politécnica Territorial de Falcón Alonso Gamero (UPTAG), Falcón, Venezuela, y Alianza de Investigadores Internacionales (ALININ), Medellín, Colombia.

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Introduction

The book “Proceedings of the VIII International Congress on Trends in University Research. A view from Latin America” is a work of scientific production from the Unión Global Collection, attached to the Servando Garcés University Publishing Fund of the Universidad Politécnica Territorial de Falcón Alonso Gamero (UPTAG). It is an international, peer-reviewed publication open to all areas of knowledge. In this book we present the proceedings of the VIII International Congress on Trends in University Research. A view from Latin America, which are offered as summary chapters of the assessments of the research presented. This production is a work that combines art and science of high intellectual quality generated by researchers who show the development of their academic, scientific, technological and humanistic work developed in different settings of society.

The chapters presented in this book gather the different topics that were addressed at the VIII International Congress on Trends in University Research: A View from Latin America. This event presented a large number of topics that were of interest to researchers who participated in two intense days of exchange of knowledge and experiences. This can be seen in its 57 chapters, which show the multidisciplinary that characterizes this event.

The book Proceedings of the VIII International Congress on Trends in University Research, was committed to the social role of science, providing spaces for the dissemination of studies focused on emerging issues. In this way, the book is a sample of its commitment to science and society, becoming a source of publication that supports the academic and scientific community in fulfilling the mission of the alliances created at national and international level. Hence, the principle of interdisciplinarity prevails by promoting dialogue between sciences through this space; therefore, this book continues to promote research, communication and the dissemination of scientific knowledge.

Finally, it should be noted that the approaches and arguments presented in the chapters of the book are the sole and exclusive responsibility of their authors, and therefore the Coordinators, the “Servando Garcés” University Publishing Fund of the “Alonso Gamero” Territorial Polytechnic University of Falcón, the Alliance of International Researchers, and other institutions that endorse the work, act as a third party in good faith.

The Coordinators

Chapter I

TECHNOLOGICAL SUSTAINABILITY AND CIRCULAR ECONOMY AS SOURCES OF COMPETITIVE ADVANTAGE IN THE SUPPLY CHAIN OF SMES

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Abstract

Sustainability has been consolidated as an essential strategic axis in organizational decision-making. This study aims to analyze the impact of enabling technologies on sustainability, business models, and the performance of supply chains in Latin American small and medium-sized enterprises (SMEs). A systematic review and thematic content analysis were conducted using academic databases and reports from national and international organizations such as the United Nations (UN), the Economic Commission for Latin America and the Caribbean (ECLAC), the United Nations Industrial Development Organization (UNIDO), the National Institute of Statistics and Geography of Mexico (INEGI), and the Confederation of National Chambers of Commerce, Services and Tourism of Mexico (CONCANACO). The research adopts a qualitative, descriptive, and sociocritical approach with a cross-sectional documentary design. The sample consisted of 58 documents published between 2018 and 2025, including indexed scientific articles and technical reports with empirical evidence on the integration of emerging technologies into sustainability and organizational performance of SMEs. The findings highlight the need to advance toward more sustainable and technologically integrated management models. Based on the situational diagnosis, an organizational maturity model is proposed, articulating digital transformation, sustainability, and circular economy as core axes for value generation, enabling SMEs to transition toward more circular, resilient, and competitive production structures.

Keywords: organizational sustainability; digital transformation; supply chains; enabling technologies; circular economy.

Chapter II

RURAL ENTREPRENEURS AND THEIR RELATIONSHIP WITH TERRITORIAL RESILIENCE IN THE LOS RÍOS REGION OF CARMEN, CAMPECHE

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Abstract

Resilience has generally been Considered a global attribute, resilience is the holistic capacity of the system, as a whole. This is understood as the adaptive response of territories and their inhabitants to changing situations. Poverty is considered an economic problem that could be solved by increasing income; for example, community-based tourism is an activity that could boost the local economy through employment opportunities. The main objective of this research is to show the characteristics of rural entrepreneurs in the Rio region and the resources they have for their development. It is considered that entrepreneurs require social resources to protect them and strategies that allow them to achieve economic growth. The methodology applied is based on a mixed-methods approach, including primary and secondary sources, such as a survey and statistical analysis. A questionnaire was randomly administered to a convenience sample. In Campeche, Mexico, the rate of informal employment was 55%, indicating that more than half of the workers in the state lack social security and employment benefits. (INEGI, 2025). It was observed that agriculture, livestock, forestry, hunting, and fishing activities saw the greatest decrease in the number of people employed in these activities. Thus, the main findings of this research show that the inhabitants have limited training for entrepreneurship, as they lack knowledge of administration and accounting, investment plans, customer service fundamentals, among other aspects. Of the forty-three people who responded to the survey, 21 are men and 22 are women, among whom vulnerability and job insecurity are more pronounced. In order to strengthen entrepreneurship in rural areas, the importance of generating business associations and support networks for the development of a social and solidarity economy in the river region is highlighted. Those interviewed mentioned that they do not have employment benefits, have limited access to medical services, and, lacking stable salaried employment, create businesses to survive. It is noted that the socioeconomic conditions of the population are irregular and precarious.

Keywords: rural entrepreneurship, vulnerability, social economy, rural-community tourism, precariousness

Chapter III

STRUCTURAL FACTORS THAT LIMIT RURAL FEMALE ENTREPRENEURSHIP IN LATIN AMERICA: ANALYSIS OF RECENT SCIENTIFIC LITERATURE

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Abstract

Rural female entrepreneurship in Latin America is fundamental for economic development and gender equality, but it faces structural barriers that limit its consolidation. This article analyzes these obstacles through a bibliometric study of 156 scientific publications from the last two decades, extracted from databases such as Scopus, Web of Science, SciELO, Dimensions, and ISI. The research identifies recurring barriers: restricted access to financing, low technical training, limited support networks, and restrictive sociocultural norms. These challenges vary by country and productive sector, highlighting the need for differentiated approaches. It concludes that the advancement of rural women's entrepreneurship requires comprehensive public policies, strategies sensitive to the local context, and greater comparative scientific production. Understanding these barriers and their regional dynamics is key to designing sustainable solutions that empower rural women as agents of economic and social transformation in Latin America.

Keywords: rural female entrepreneurship, structural barriers, latin america, rural women, bibliometric analysis

Chapter IV

CURRENT STATE OF KNOWLEDGE ON THE EFFECT OF AUGMENTED REALITY ON READING COMPREHENSION IN EARLY CHILDHOOD

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Abstract

Results from international reading comprehension (RC) assessments show low performance among various population groups and suggest the need to develop new ways to encourage reading. Student-centered learning and digital transformation have led to the incorporation of augmented reality (AR) in textbooks to enhance RC, making it important to review the current state of knowledge to guide future educational developments. A systematic review was conducted, including original, quasi-experimental, and open-access articles. The search was performed in Scopus, Springer Link, ScienceDirect, EBSCO, Sage, Taylor & Francis, and PubMed databases. Ten studies were identified, all of which showed a positive impact on RC after reading AR-based texts. The review discusses the control and measurement of variables necessary to generalize findings and highlights the importance of analyzing the theoretical and procedural foundations of AR-based design.

Keywords: reading comprehension, augmented reality, cognitive development.

Chapter V

STRATEGIC ANALYSIS OF THE TOURISM INDUSTRY, CASE STUDY: MUNICIPALITY OF CELAYA, MÉXICO

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Abstract

This qualitative empirical research project, conducted in collaboration with the Celaya Tourism Council, aims to analyze the products, services, and campaigns currently operating in the tourism industry in the municipality of Celaya. This research aims to generate relevant information for integration into the municipality's Tourism Development Plan. Data were collected from 24 informants selected through purposive sampling and distributed across four focus groups through workshops held from May to July 2024. A semi-structured interview guide with seven open-ended questions was used. Using the strategic analysis tool for Strengths, Weaknesses, Opportunities, and Threats (SWOT), the codes associated with each category were identified. The results obtained reinforce the importance of continuing and strengthening collaborative work with different social actors, as indicated by the stakeholder theory. Undoubtedly, an emerging theme is the development of a plan focusing efforts on community tourism, religious tourism, and eco-tourism, taking advantage of the infrastructure of historical monuments dating back to 1521, as well as the festivals, traditions, and gastronomy of the municipality of Celaya.

Keyword: strategic planning, community tourism, stakeholder theory.

Chapter VI

STRATEGIC EVALUATION OF THE EXPORT OF SUSTAINABLE ALUMINUM SOLUTIONS TO THE CANADIAN MARKET

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Abstract

This research presents the design and analysis of an export plan for aluminum doors and windows from Colombia to Canada, aiming to evaluate its commercial, logistical, and regulatory feasibility within the current context of international trade. The proposal emerges from the need to diversify the national export portfolio with value-added products that meet new demands for sustainability, energy efficiency, and quality in developed markets. The methodology was descriptive and documentary in nature, based on official sources, current customs regulations, and technical data of the product. The study analyzed key aspects such as the Canadian market profile, transport logistics, required customs procedures, direct export costs, and the application of appropriate Incoterms. The results demonstrate that, under the analyzed conditions, the export of this type of manufactured goods is both technically and economically feasible. The study concludes that the proposed model is not only replicable by other companies in the Colombian metalworking sector but also represents a real opportunity to strengthen the presence of value-added products in international markets. Furthermore, it highlights the importance of integrating technical, commercial, and regulatory knowledge to achieve successful and sustainable internationalization.

Keywords: aluminum, international trade, export, metalworking industry, logistics.

Chapter VII

FEMALE ENTREPRENEURSHIP AND COMPANY'S DIGITALIZATION FROM THE PERSPECTIVE OF GROUNDED THEORY

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Abstract

Digitalization has radically transformed the economic landscape, democratizing access to markets and resources. However, the gender gap in technology adoption remains as a significant challenge. This study, conducted in Celaya, Guanajuato, aimed to understand the role of women founders in the digitalization of their micro, small, and medium-sized enterprises (MSMEs). The research was framed within a qualitative paradigm and employed a grounded theory design. The reference framework included the Individual Gender Differences Theory (IGDT) and Information Technology (IT) Theory. Twenty interviews (both in-person and online) were conducted between February and June 2025, and the data was analyzed using Atlas.ti v7. The study found that women's entrepreneurship is driven by profound concerns and fueled by a constant pursuit of training (both empirical and formal). Women utilize technology for management and growth, facing structural and social challenges. Gender stereotypes persist, and the phenomenon of intragender sexism was identified. Formalization and professionalization proved to be key conditions for business sustainability. Women face external, internal, and symbolic barriers that affect their level of digital adoption. Their entrepreneurship is characterized by a dynamic cycle of motivation, learning, and adaptation. This cycle is driven by the aspiration for social impact and collective well-being, beyond the mere pursuit of income.

Keywords: female entrepreneurship, digitalization, motivations and challenges, stereotypes, intragender machismo.

Chapter VIII

IMPLEMENTATION OF IFRS S1 AND S2 IN COMPANIES IN NEIVA: COMPLIANCE ANALYSIS AND CHALLENGES

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Abstract

This research analyzes compliance levels, organizational capabilities, and challenges faced by construction sector companies in Neiva regarding IFRS S1 and S2 implementation. A mixed descriptive-exploratory approach was applied through surveys to 38 construction companies and interviews with 10 sustainability experts. Results revealed significant deficiencies in technical knowledge (79% with basic or no knowledge), limited resources (71.1%), and absence of integrated systems (78.9%). Only 10.5% presents adequate organizational readiness. Main barriers identified included lack of specialized personnel (73.7%), high costs (71.1%), and regulatory ignorance (76.3%). The study demonstrated that effective implementation requires differentiated strategies by company size, specialized training programs, and development of institutional support frameworks, contributing to strengthening regulatory compliance and business sustainability.

Keywords: accounting standards, construction industry, sustainable development, financial information, business policies.

Chapter IX

COMPETENCY ANALYSIS IN THE SABER PRO TESTS: A STUDY IN AGROINDUSTRIAL ENGINEERING FOR THE 2024-I PERIOD

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Abstract

This article analyzes the competencies assessed in the SABER PRO tests for the Agroindustrial Engineering program during the 2024-I period. The main objective was to examine student performance in the various competencies of the exam, using a quantitative approach. A survey was administered to 25 students, and the results were subjected to statistical analysis to evaluate performance in the assessed modules. Findings indicate that 32% of the students exceeded the national average, while 68% did not. The areas with the lowest performance were identified as English and written communication, suggesting the need to focus efforts on these competencies. The conclusions highlight the importance of improving non-numerical skills and emphasize the program's efforts to optimize results, as evidenced by the inclusion of training and institutional adjustments.

Keywords: Higher Education - Evaluation - Agroindustrial Engineering - SABER PRO tests.

Chapter X

MICROBIOLOGICAL ANALYSIS OF WATER IN EDUCATIONAL INSTITUTIONS IN AGUACHICA

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Abstract

The objective of this study was to conduct a microbiological analysis of water in educational institutions in Aguachica, Cesar, Colombia, in order to determine its potability levels or, conversely, verify the presence of pathogenic microorganisms that could harm the health of educational stakeholders. During the course of the study, the need for an assessment of water quality and health risk was identified, as the state of the water, stored in wells and tanks without an automatic drinking water system, can influence the presence of microorganisms in drinking water. Regarding the materials and methods used for the research, a mixed methodology was chosen, integrating qualitative and quantitative methods. The research was descriptive, exploratory, and flexible in design, utilizing a variety of methodological techniques for data verification. The study revealed the presence of *Escherichia coli*, mesophilic aerobes, and coliforms as pathogens in drinking water storage containers. It was concluded that this represents a health risk to the school population due to the presence of microorganisms that cause waterborne diseases. Based on the above, there is a clear need to raise awareness among administrators and other members of the educational community, especially parents and student representatives, to conduct internal and external campaigns emphasizing the importance of water quality in preventing disease transmission. This campaign should guide managerial, administrative, and technical actions to ensure proper water storage and adopt good hygiene practices.

Keywords: Microbiological analysis, Water, Potability, Microorganisms, Health.

Chapter XI

QUALITY PLANNING MODEL FOR THE INCORPORATION OF TECHNOLOGICAL PLATFORMS IN BASIC AND SECONDARY EDUCATION

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Abstract

This study proposes a model for quality planning in the adoption of virtual technology platforms at the basic, secondary, and middle education levels. It will be applied at the Laureano Gómez Castro Educational Institution, located in Aguachica, Cesar, Colombia. The overall objective was to design and validate a model that guides quality planning for the adoption of virtual learning platforms, responding to pedagogical and institutional management needs. The research adopted a mixed approach, integrating qualitative and quantitative methods for context analysis, model design, and subsequent validation. An institutional diagnosis of the use of virtual platforms was conducted, along with a review of the state of the art in educational quality management. Key elements for structuring the model were defined. A pilot test was subsequently conducted to evaluate its relevance and functionality. The results show that the model contributes significantly to improving the planning and monitoring of technology adoption processes, strengthening aspects such as teacher training, digital infrastructure, and resource management.

Keywords: virtual classrooms, ICT integration, teaching practices, and innovation process.

Chapter XII

LEARNING THEORIES VS. TEACHING PRACTICE: AN ANALYSIS OF THE EDUCATIONAL MODEL OF THE POPULAR UNIVERSITY OF CESAR"

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Abstract

The purpose of this paper is to comparatively study the main learning theories, such as behaviorism, cognitivism, constructivism, and the sociocultural approach, with the institutional pedagogical model used by the Universidad Popular del César (UPC). This study seeks to verify the degree of coherence between its theoretical foundation and the pedagogical practices it develops. This analysis is carried out under the auspices of contemporary theoretical background that addresses the pedagogical implications of learning theories and their implementation in the educational models of higher education institutions. The methodology used was a documentary review and critical analysis of five core components that comprise the institutional pedagogical model: theoretical characterization, scientific foundation, role of subjects, approach to the pedagogical process, and the core of the proposal. Official documents were also reviewed, compared with current academic literature, and critically interpreted. Among the main findings is that, although the institutional discourse points towards a cognitive-constructivist and contextualized model, the inconsistencies between what is stated and teaching practices are: traditional practices, low student participation and poor link between theory and practice. In conclusion, based on the results, it is considered necessary to strengthen the internal cohesion of the central pedagogical model, articulating theoretical foundations more clearly with methodological strategies. It is recommended to promote ongoing teacher training processes, enhance active methodologies, design tailored curricula, and generate institutional pedagogical research that takes into account the social, cultural, and technological realities of the regional environment.

Keywords: Learning theories, pedagogy, critical approach, higher education.

Chapter XIII

CHARACTERIZATION OF THE INFORMAL SECTOR AND THE ACTIVITIES OF THE POPULAR ECONOMY AFFECTING THE MUNICIPALITY OF AGUACHICA, CESAR

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Abstract

The economic activities of Aguachica are immersed in the informal economy, with a connotation of informality. This interpretation generates controversies in aspects such as: governance, management of public space, control and monitoring of health and safety at work, inadequate practices in public health control and waste management. These types of economies become an alternative source of employment that involves labor and consumption of local raw materials. The purpose of this study was to analyze the practices of the popular economy in favor of sustainability in the municipality of Aguachica, Cesar. A mixed, descriptive approach was used. As a result, it was possible to know the economic behavior, the problems regarding the management of public spaces, the resources used and the impact on natural resources in the municipality, thus seeking alternatives of governance and practices for the sustainable development of the municipality.

Keywords: popular economy, alternative employment, governance, informality, local labour, raw materials

Chapter XIV

RISK ANALYSIS AND PREVENTIVE MEASURES TO GUARANTEE SAFETY IN THE MEAT SALES OF THE PUBLIC MARKET OF AGUACHICA – CESAR

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Abstract

Food safety is a primary concern in the meat trade, given that biological, chemical, and physical contamination can pose a risk to consumer health. This research consisted of evaluating different retail establishments dedicated to the sale and marketing of meat products, reviewing each one in accordance with Resolution 2674 of 2013, which INVIMA establishes as fair and necessary for all those who carry out activities related to the manufacture, processing, preparation, packaging, storage, transport, distribution, and marketing of food and raw materials, as well as all the necessary requirements for the notification, permission, and health registration of food, in order to protect the life and health of people. The purpose of this research was to analyze the potential hazards and risks to food safety in the meat section of the public market in Aguachica, Cesar, contributing to the lines of research on comprehensive management systems through the analysis of food safety, the implementation of best practices, and the promotion of continuous improvement. This study is part of a quantitative-qualitative, exploratory, and descriptive research project that investigates the phenomenon,

detailing its characteristics and achieving two levels of analysis: that of the phenomenon and that of the researcher's purpose. Data was collected using a data recording guide and a semi-structured interview, both used by the researchers. The population consisted of six (06) experts on the subject, two (2) members of the health personnel of the responsible government entity, expert food handlers, and butcher shop personnel from the department of Cesar. The results showed the possible hazards and risks that could affect food safety in the meat sales area and, through this, the effectiveness of the controls already being implemented in the different areas established to prevent food risks is analyzed. This will include reviewing cleaning and disinfection protocols, monitoring good food practices, and controlling production processes. However, it is being affected by the workers in charge of the meat area, as they have not participated in food handling training activities, leading to the implementation of artisanal practices that are not regulated by current standards. In consideration of the relevant conclusions, all these variables are analyzed, noting that this investigation is ongoing; therefore, not all corrective measures or procedures to be carried out in accordance with the findings of the food safety hazard and risk analysis are described.

Keywords: Bacteria, Control, Safety, Pathogens, Risks

Chapter XV

INTERNATIONAL COFFEE COMPETITIVENESS UNDER THE SPOTLIGHT: A PANEL DATA STUDY BETWEEN MEXICO AND COLOMBIA

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Abstract

The objective of this study focused on identifying the factors that influence coffee competitiveness in the global market, specifically in Mexico and Colombia, between 2005 and 2023. To this end, the Balassa Index was used to identify competitiveness, and the analysis was complemented with a panel data econometric model, which allowed for the examination of the relationship between macroeconomic variables and competitiveness. Fixed and random effects models were applied, as well as statistical tests such as the F, Chi-square, and Hausman tests to determine the most appropriate model. The results show that, unlike Mexico, Colombia maintains a strong position in the international market, which may be a result of its coffee tradition and the differentiation of its widely recognized product internationally. The econometric analysis identified a negative relationship with the exchange rate and the producer price. Given this, the need for public policies, particularly in the Mexican case, focused on economic stability and fair prices for coffee growers is highlighted. The main limitation is that the study is limited to the analysis of two countries, so the sample could be expanded in future works.

Keywords: Competitiveness, agricultural exports, Balassa Index, panel data, exchange rate

Chapter XVI

STRATEGY TO STRENGTHEN ACADEMIC PERFORMANCE AND STUDENT BEHAVIOR AT THE LAUREANO GÓMEZ CASTRO TECHNICAL INSTITUTE

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Abstract

This chapter examines the academic performance and behavior of students at the Laureano Gómez Castro Technical Institute, located in Aguachica, Cesar, addressing the various dimensions that affect the quality of education for students in socially vulnerable environments through a mixed-methods approach that combines quantitative and qualitative techniques. Deficiencies in study patterns, limited family support, and high levels of academic performance were identified. The information shows that most students spend less than 30 minutes studying and fall into low and basic performance levels, which poses a high risk of academic failure. The study also covers emotional elements and family coexistence, showing signs of demotivation and a need for emotional support among a significant portion of the students. In this context, the pedagogical strategy "The strategy implemented to enhance academic performance and student behavior at the Laureano Gómez Castro Technical Institute" was evident as an innovative tactic to boost awareness, independence, and responsible decision-making among young people, despite its effectiveness relying on continuity and institutional and family support. Therefore, it is proposed to establish mentoring programs, enhance family education in study habits, and ensure the viability of pedagogical tactics. It is deduced that to improve academic performance and student behavior, a complete commitment among the school, family, and community is necessary, in addition to implementing innovative and lasting pedagogical strategies.

Keywords: Family support, Student behavior, Study habits, Pedagogical intervention, Academic performance; Family support.

Chapter XVII

ECONOMIC VALUATION OF HOUSEHOLD SOLID WASTE IN THE CENTRAL HIGHLANDS OF PERU

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Abstract

This study aimed to economically value the household solid waste management service in the district of Quilcas, Huancayo, Junín, Peru, using the contingent valuation method. The research method employed was analytical-synthetic, using primary source data obtained from a sample of 294 households through simple random sampling. The results demonstrate that the model at a general level is consistent and statistically significant ($p < 0.01$). Regarding socioeconomic variables, it was determined that economic variables such as employment status and educational level of the household head are not significant, while the income range of S/. 900-1199 is significant in willingness to pay. Concerning social variables, the age of the household head is significant, reducing the probability of paying by 0.6% for each additional year, and gender is significant, with willingness to pay being higher when the household head is male. The number of household members was not significant. It was determined that 49% of households are willing to pay for improvements in household solid waste management, with an average willingness to pay of S/. 7.034 (USD 1.86) monthly, representing an aggregate economic value of S/. 94,959.00 annually for the district.

Keywords: Valuation, Waste, Willingness, Sustainability, Economics.

Chapter XVIII

GUIDE TO OPTIMIZING THE OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM (OHSMS) IN THE MEAT SECTOR

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Abstract

The purpose of this research was to design a theoretical and practical guide for optimizing the health and safety management system in the Colombian meat industry. Methodology: An exploratory and descriptive methodology was implemented for the research, leveraging existing literature in the area and adapting an audit template, following Colombian Occupational Health and Safety guidelines. During the development process, data was obtained from two (2) key informants from companies in the food sector, experts in occupational health and safety. Results: Based on the results obtained after analyzing the sector, the proposed guide for optimization was designed. Deficiencies were identified in compliance with some aspects of the Colombian standard in this area for worker safety, as well as some inconsistencies in business policies and requirements related to this topic. Conclusion: It was concluded that the organizations studied have and comply with the systematic documentation required by the OSHMS system, but their implementation is not legally in accordance with current regulations. Therefore, theoretical and practical guidelines were recommended to optimize the management system in the companies studied. These could be implemented through the use of software as a technological tool that centralizes health and safety policies, adapted to current regulations. This would guarantee effective compliance, ensuring business economic stability and staff well-being.

Keywords: Continuous improvement, Colombian labor regulations on occupational safety and health, Meat sector, Occupational safety and health (OSH), Occupational safety and health management system (SG-SST)

Chapter XIX

CHARACTERIZATION OF THE MILLENNIAL GENERATION FOR JOB INSERTION, SOCIO-PROFESSIONAL AND EMPLOYABILITY

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Abstract

The purpose of this article was to characterize the Millennial Generation in terms of job placement, socio-professional outcomes, and employability. Methodologically, a quantitative, descriptive approach was used, with the study population being Millennials from the city of Bucaramanga. The results demonstrate an encouraging outlook regarding their willingness and ability to integrate into the labor market. They reveal that the majority of respondents have a positive attitude toward initial social interaction, standing out for their ease in smiling and opening up to strangers. It is concluded that there is significant potential for establishing effective networking and working relationships. Likewise, their high self-confidence and positive perception of their personal qualities indicate a solid foundation for professional and personal development. It is recommended to address the small percentage that still faces difficulties in these aspects, which underscores the importance of social skills and self-esteem development programs to strengthen the employability of this group.

Keywords: employment, generation, job placement, labor market, Millennials, profession, labor relations.

Chapter XX

SIX SIGMA IMPROVEMENT MODEL TO FOLLOW IN COMMERCIAL COMPANIES IN SANTA MARTA

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Abstract

The Six Sigma methodology is considered a continuous improvement quality management method aimed at reducing waste to below ten percent. In this regard, the purpose of the research presented here is to describe the Six Sigma improvement model applicable to commercial companies in the food and beverage sector of the city of Santa Marta. According to its methodological nature, this research is considered descriptive, with a field design, non-experimental, and cross-sectional. The population from which the information was collected consisted of 36 participants belonging to organizations in the sector, using a census-type technique. The instrument designed corresponds to a structured dichotomous survey, from which 24 items were extracted, achieving a high Kuder-Richardson (KR-20) reliability value of 0.945. The results showed that the evaluated companies do not implement Six Sigma, which could compromise the profitability of their business due to the lack of a formal quality management system. Therefore, it is recommended to implement a continuous improvement process based on this work model.

Keywords: to define, to measure, to analyze, to improve, to control.

Chapter XXI

TEACHERS' PERCEPTIONS OF PROBLEM-BASED LEARNING IN TECHNICAL SECONDARY EDUCATION

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Abstract

This research focused on exploring the perceptions of Technical Education teachers at COMFANORTE School in Cúcuta, Norte de Santander, regarding Problem-Based Learning (PBL). A qualitative approach with a phenomenological method was used to gain a deep understanding of educators' viewpoints. Data collection involved document review, interviews, and non-participant observation, engaging five teachers from various areas of the institution. The results indicate that all teachers have a curriculum plan incorporating PBL and consider this method effective for learning across different Technical Education subjects. Finally, an alignment was observed between teachers' perceptions of PBL, curriculum planning, and implemented pedagogical practices, highlighting consistency in the application and evaluation of the method.

Keywords: Problem-Based Learning, Technical Education, Teacher Perceptions, Educational Perceptions, Pedagogical Practices.

Chapter XXII

TECHNOLOGICAL TOOL FOR RECORDING TEACHER ATTENDANCE AT THE UNIVERSIDAD POPULAR DEL CESAR, AGUACHICA BRANCH, USING RFID TECHNOLOGY

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Abstract

RFID is a radio frequency identification technology that allows university-level organizations, schools, and industries to record the entry and exit of people and products within their respective environments. This system, with its range of benefits, enables the use of a process that has positioned itself as an indispensable technology in the 21st century. Radio frequency identification is increasingly becoming a crucial tool for companies with large operational capacities. Those implementing logistics processes are the most frequently used, benefiting from the wide range of advantages it offers. This technology has been implemented as an ideal replacement for the outdated process of reading barcodes and QR codes in industrial production. This project proposes the design and implementation of a teacher attendance management tool using RFID technology at the Universidad Popular del Cesar, Aguachica Branch, with the goal of automating manual processes. Results are evident that highlight its effectiveness: rapid identification, real-time monitoring, and reduction of human error. The implemented solution, AsisDoc RFID, facilitated automated attendance control through an intuitive and easy-to-use interface. Thus, it is concluded that radio frequency identification not only modernizes institutional processes but also contributes to strengthening a technological, dynamic, and efficient academic culture. The use of this technology represents a step forward in the digital transformation of universities, providing a sustainable, functional, and replicable alternative in other educational and administrative environments.

Keywords: RFID Technology. System. Radio Frequency. Education. Automation.

Chapter XXIII

VALUATION OF GOODWILL AS AN INTANGIBLE ASSET IN MICROENTERPRISES OF THE CESAR DEPARTMENT: A STRATEGIC MANAGEMENT APPROACH

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Abstract

The objective of this study was to analyze both the perception of goodwill as an intangible asset and the implementation of its strategic management in microenterprises located in Cesar, Colombia. Goodwill has emerged as a key intangible asset in modern business management, particularly in microenterprises, where its proper valuation can directly influence sustainability and competitiveness. Therefore, a quantitative, descriptive, and non-experimental cross-sectional research design was employed, applying a structured questionnaire to 38 microenterprises operating in commercial economic sectors. The findings reveal that while 100% of respondents consider goodwill essential for business sustainability, only 18% of organizations are implementing concrete actions aimed at strategically managing this asset. This reflects a gap between the perceived value of goodwill and its effective integration into administrative processes. In response, this study proposes an administrative management model that incorporates goodwill management into strategic planning, human talent training, process digitalization, and quality certification as mechanisms to strengthen competitiveness and ensure long-term market presence. It is concluded that adopting systematic practices for managing intangible assets is a key factor for business growth and sustainability. This study provides an empirical foundation for future research and for the design of strategies aimed at the formalization and professionalization of business management.

Keywords: intangible asset, good name, administrative management, corporate sustainability, strategic management.

Chapter XXIV

TRENDS IN SCIENTIFIC PRODUCTION ON INDIGENOUS ENTREPRENEURSHIP

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Abstract

This article aims to analyze the academic literature on indigenous entrepreneurship using a bibliometric approach. A database was constructed with 594 records integrating information from SCOPUS and WOS offering a comprehensive analysis of the field of study. The results show dynamic growth since 2003, highlighting the Journal of Enterprising Communities as the most influential journal and Towards a Theory of Indigenous Entrepreneurship by Peredo et al., published in 2004, as the most cited work. The central themes or “motor themes” deal with innovation, entrepreneurs and knowledge, and communities, sustainability, and indigenous businesses, integrating categories such as social capital, tourism, and gender. This work offers an updated and comprehensive view of studies on indigenous entrepreneurship, overcoming the limitations of other research and establishing itself as a relevant and replicable reference for the development of future research, the development of indigenous enterprises, and the design of public policies.

Keywords: Indigenous entrepreneurship; bibliometric analysis; indigenous businesses, indigenous entrepreneurs.

Chapter XXV

DISTRIBUTION AND COMMERCIALIZATION OF MANGO IN COLOMBIA (2014-2024): KEY ACTORS ACCORDING TO A BIBLIOMETRIC ANALYSIS

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Abstract

This study analyzes the distribution and commercialization of mango in Colombia (2014-2024), identifying key actors and market dynamics. Through a qualitative bibliometric approach, indexed studies from specialized databases were examined. Findings reveal a growing scientific production on the subject and the evolution of research approaches. Key actors such as producers, intermediaries, agricultural associations, and retailers were identified, with interactions influenced by intermediation, price setting, and available infrastructure. Factors like government policies, market access, and logistics also impact mango commercialization. It is concluded that, although there are advances in market understanding, challenges remain regarding equity in benefit distribution and supply chain sustainability. Strengthening producer organization, improving infrastructure, and promoting public policies that optimize commercialization are recommended.

Keywords: agricultural commercialization, distribution, bibliometrics, mango.

Chapter XXVI

CHALLENGES AND OPPORTUNITIES IN EDUCATION

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Abstract

This study analyzes the challenges and opportunities of higher education in regional and rural contexts in Latin America, based on an international discussion held in a metaverse environment. The research is framed within a qualitative, exploratory, and descriptive approach, with the participation of experts from six Latin American countries. Concepts such as learning ecosystems, connectivism, disruptive innovation, and equitable access to education are addressed. The results reveal gaps in technological infrastructure, connectivity, and curricular relevance, as well as strategic opportunities linked to the incorporation of adapted technologies, teacher training, and inter-institutional partnerships. The conclusion is that strengthening education in these regions requires coherent public policies, investment in infrastructure, and innovative pedagogical methodologies.

Keywords: Digital divides, connectivism, learning ecosystems, rural education, innovation, metaverse.

Chapter XXVII

TECHNICAL-ECONOMIC FEASIBILITY FOR THE MANUFACTURE OF CONSTRUCTION BLOCKS BASED ON RICE HUSK (ORYZA SATIVA)

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Abstract

This study analyzes the replacement of sand and gravel with rice husks (*Oryza sativa*) in the production of building blocks, evaluating their economic impact on the construction sector. To this end, a mixed-use approach was applied, where six different mixtures were designed and tested with husk contents ranging from 55%, 61%, and 67%, achieving production costs ranging from \$1,320 COP to \$1,807 COP per manufactured block. The results show that a higher percentage of husks tends to reduce unit costs, although small-scale production still presents high costs compared to conventional methods. Nevertheless, the proposal represents an alternative that allows for the valorization of an agricultural waste that is difficult to dispose of, reduces the indiscriminate extraction of natural aggregates, and reduces CO₂ emissions associated with the construction sector. In conclusion, the industrial scaling of this initiative would improve profitability, promoting sustainable and circular construction with social, economic, and environmental benefits, and would be considered a viable and technical product.

Keywords: Blocks, Rice husk, Gravel, Technical-economic feasibility.

Chapter XXVIII

COMPARISON OF *PROCHILODUS MAGDALENAE* PLANTING DENSITIES IN EXTENSIVE, SEMI-INTENSIVE, AND INTENSIVE CROPS USING BIOFLOC TECHNOLOGY

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Abstract

This study analyzes the stocking density of *Prochilodus magdalene* in the different extensive, semi-intensive, and intensive stocking systems used in the bocachico grow-out stage. A mixed methodology was used based on a review of the scientific literature, which shows that the extensive production system manages a stocking density of 1 fish/m³, the semi-intensive can reach densities of 3 fish/m³, and intensive cultures with Biofloc technology can manage densities of up to 20 fish/m³. It should be noted that increasing the stocking density of this species reduces weight gain margins; therefore, it is important to consider the stocking density to avoid stress, which is directly reflected in weight gain.

Keywords: Density, *Prochilodus magdalene*, weight gain.

Chapter XXIX

ANALYSIS OF THE SOURCES OF FINANCING USED BY INFORMAL VENDORS IN AGUACHICA, CESAR

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Abstract

This article is about the characterization and sources of financing of informal seller in the municipality of Aguachica. It was analyzed variables such as demographics, employment, level of education and their sources of financing. A survey was applied 112 people where I inquired about the variables mentioned above. It could be established the conditions in which they are and to whom these people go when they need money to start their business or to expand it. A comparison is made between two. It permits to the reader making a reflection and taking a decision about the situation of seller in this municipality.

Keywords: Informal economy, informal credit, informal traders, financing, interest.

Chapter XXX

VIRTUAL REALITY SIMULATOR FOR TEACHING LAW 1480 THROUGH GAME-BASED LEARNING

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Abstract

This article presents a prototype of an educational simulator in Virtual Reality (VR) focused on the practical teaching of the Colombian Consumer Protection Statute (Law 1480 of 2011). The tool uses game-based learning strategies to offer an immersive experience where users simulate complete legal processes. Technical development was carried out in Unity using C# and the Viroo libraries, applying the SAM iterative model to refine the instructional design and interfaces. An initial evaluation with users with no prior VR experience showed positive results, particularly highlighting the improved understanding of the legal procedures involved.

Keywords: Consumer protection · Law 1480 · legal simulator · virtual reality · legal education · game-based learning.

Chapter XXXI

DEVELOPMENT OF SOFTWARE FOR THE EARLY DETECTION OF ALZHEIMER'S USING ARTIFICIAL INTELLIGENCE TECHNIQUES

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Abstract

The research focused on the analysis of medical data and the development of software that, by integrating machine learning algorithms, could identify patterns in clinical data obtained from patients, such as brain images and cognitive tests. The research focused on the analysis of medical data and the development of software that, by integrating machine learning algorithms, could identify patterns in clinical data from patients, such as brain images and cognitive tests. The results obtained show that the software is capable of identifying early signs of Alzheimer's with adequate accuracy, demonstrating the viability of artificial intelligence in improving the diagnosis and treatment of this disease. In conclusion, it can be stated that this research highlights the importance of using technology to improve the detection and diagnosis processes of Alzheimer's disease, incorporating an innovative tool that can facilitate medical care and more efficient patient monitoring.

Keywords: Artificial Intelligence, Numpy, Scrum, Pattern Recognition.

Chapter XXXII

THE CONCEPT OF DECENT RURAL WORK: A VISION FOR EMERGING ECONOMIES

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Abstract

This article proposes a comprehensive definition of the concept of decent rural work, adapted to the context of countries with emerging economies. Through a critical literature review, the specificities of rural labor markets are examined in contrast to the characteristics of decent work in urban settings. Factors such as informality, seasonality, and lack of social protection stand out as the main challenges in rural areas, which requires a specific conceptual framework. The theoretical analysis identifies existing gaps in the conceptualization and measurement of decent rural work, emphasizing the need to consider dimensions such as gender equity, access to secure employment conditions, and the promotion of fundamental labor rights. This approach aligns the specificities of rural areas with the sustainability and social well-being objectives promoted by international organizations such as the International Labor Organization (ILO). The results highlight that, although decent work has been widely adopted in global policies, its implementation in emerging economies requires specific strategies to overcome inequality and promote operational indicators applicable to the rural context. In conclusion, a practical framework based on the concept of decent rural work developed in this research is proposed. This framework facilitates the evaluation and design of more effective public policies aimed at ensuring inclusive and sustainable development in rural areas.

Key words: Rurality, Rural Work, Decent Work, Emerging Economies.

Chapter XXXIII

MENTAL WORKLOAD OF EMPLOYEES IN PRIVATE HEALTH CENTERS

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Abstract

The objective of this research seeks to analyze the mental workload of collaborators in private health centers in the Lagunilla municipality of Zulia state. Theoretically, this study is supported by authors such as: Guy Ryder (2022), Ceballos and Vásquez (2015), García and del Hoyo (2017), Gonzales and Pérez (2020) and Ruiz (2019). It is classified as a descriptive, non-experimental, cross-sectional, and field research. The survey was used as a data collection technique and the instrument was an 18-item multiple-choice questionnaire applied to a sample of 120 collaborators. The results allowed to identify in the collaborators the determining factors of the mental workload such as the work demand, individual factors and capacity of the worker, as well as the risks associated with the mental workload are described as the demand in the task which does not generate stress or difficulty when fulfilling their tasks, the environment organized from its internal and external factors affects the work performance, as well as the physical environment is an important factor to consider to avoid an increase in the mental workload.

Keywords: Determining factors, associated risks, work demands, mental fatigue.

Chapter XXXIV

LONG-TERM FINANCIAL PLANNING IN UNIVERSITY STUDENTS: A LOGIT ECONOMETRIC MODEL

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Abstract

Financial planning for old age has become a challenge due to rapid population aging and the increasing precariousness of social security systems. In this context, it's essential to understand the factors that influence the decision of young university students to plan their financial future. The objective of this research was to identify the sociodemographic, economic, and attitudinal determinants associated with the likelihood of a young university student planning for their old age. To do this, a structured questionnaire was applied to a sample of 134 students, which allowed for the collection and tabulation of data. These data were analyzed descriptively and through a binary logistic regression model. The results revealed that variables such as sex, socioeconomic stratum, current occupation, perception about the importance of planning, and pension system contributions are statistically significant factors associated with the behavior of financial planning for old age. Specifically, considering future planning important and actively contributing showed the greatest positive effects on the probability of planning. It is concluded that planning for old age among young university students is not random; rather, it is a phenomenon that responds to a complex interaction of individual characteristics and financial attitudes. The findings underscore the need to strengthen financial education and encourage institutional strategies that promote an early culture of foresight.

Keywords: economic planning, young university students, personal finance, logit model, social security and pensions, financial literacy.

Chapter XXXV

GPT-4 AS A TRANSFORMATIVE PEDAGOGICAL TOOL: STUDENT PERCEPTIONS IN ENGINEERING AND DOCTORAL EDUCATION CONTEXTS

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Abstract

The research aims to analyze the pedagogical impact and perceptions associated with the use of generative artificial intelligence, particularly GPT-4, in learning environments. A mixed approach to research was applied, combining case analysis with quantitative and qualitative methods. The study was developed in two scenarios: in Colombia, 122 engineering students from the Grancolombiana Polytechnic and UNIMINUTO participated, belonging to electronic engineering, data science, software and systems programs; in Costa Rica, a smaller group of 7 students of the Doctorate in Education of the De La Salle University was included. In the Colombian context, a structured questionnaire was used with six key variables, analyzed using clustering techniques (K-means) and dimensional reduction (PCA). This procedure allowed the identification of three significant perceptual clusters. The results were consistent, with high scores in ethics (95%), inclusion (90%), sustainability (85%) and transparency (82%). In addition, there was an 87% acceptance of artificial intelligence as a tool for reflection in educational processes, showing openness and willingness to integrate it into teaching. For its part, the case of Costa Rica provided a qualitative perspective, in which the platform automatically classified student decisions into three symbolic dimensions: feminine, masculine and integrative. The analysis revealed patterns linked to gender stereotypes, highlighting that 100% of female decisions were associated with environmental care actions. This finding underscores the influence of gender perceptions on decision-making within academic and environmental contexts. Overall, the results show the potential of generative artificial intelligence as a resource to promote critical thinking, self-knowledge and ethical analysis in higher education. However, the need for a contextualized, inclusive and reflective implementation that incorporates ethical and gender principles in the training of future professionals is highlighted.

Keywords: generative artificial intelligence, higher education, technology acceptance, critical pedagogy.

Chapter XXXVI

TRADITIONAL CUISINE OF THE XOCHIMILCO REGION FOR RURAL TOURISM IN MEXICO CITY

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Abstract

Mexico City is made up of 16 municipalities where people from various regions converge, bringing with them their gastronomic richness that dates to pre-Hispanic times and is added to the traditional cuisine of the 55 indigenous communities, communities that still maintain their social and cultural structure. The Xochimilco municipality is an example of this, being recognized as a historically lacustrine region with a rural agricultural tradition, renowned for its chinampa system and its natural resources as well as its tangible and intangible cultural heritage. Its cuisine reflects the knowledge and practices inherent to the community's cultural traditions and identity. This research aimed to identify the elements that make up the traditional cuisine of Xochimilco as a cultural commodity for national and international visitors. A qualitative methodology with an ethnographic approach was employed; both documentary and field research were integrated; the action research methodology was used along with tools such as semi-structured interviews, questionnaires, and a SWOT matrix. The research results reflect that traditional cuisine is closely linked to the indigenous peoples, the work of women and older adults in the region, and values based on community work, the common good, and the preservation of their traditions.

Keywords: traditional cuisine, rural tourism, gastronomy, DAFO.

Chapter XXXVII

CHALLENGES AND OPPORTUNITIES OF RURAL TOURISM IN MILPA ALTA, MEXICO CITY: DIAGNOSIS AND STRATEGIES

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Abstract

In Mexico today, in accordance with the National Development Plan 2024–2030, there is a mandate to strengthen rural communities, particularly those engaged in tourism activities. For this reason, the present research proposal examines the challenges and opportunities of rural tourism in Milpa Alta, focusing on fostering tourism development from within the communities themselves. It is based on the premise that, despite being part of Mexico City, Milpa Alta maintains strong community bonds and territorial practices capable of supporting alternative tourism models. The aim of the study is to understand how local organizational forms can enhance rural tourism. The methodology involves documentary and field research and follows a qualitative approach that incorporates ethnographic and inductive methods, as well as action research. It includes the identification of key actors, interviews, and questionnaires. The state of the art brings together concepts of rurality, territory, and community; critical tourism studies; and Actor-Network Theory to map relationships among human and non-human actors such as residents, community organizations, local authorities, and the natural and cultural heritage resources that shape tourism practices. Through a diagnostic assessment, the study identifies challenges associated with urbanization pressures, limitations in infrastructure and connectivity, unequal distribution of benefits, and risks of cultural commodification. It also highlights opportunities related to the valorization of local knowledge and practices; the diversification of tourism offerings—such as gastronomy, agrotourism, and local festivities; the development of community-based

initiatives; and the strengthening of collaborative networks that reinforce local governance. The resulting analysis seeks to provide recommendations for public policies and management strategies aimed at promoting a form of tourism that preserves community identity, supports the local economy, ensures territorial care, and contributes to academic discussions on the interrelations between rural tourism, the city, and the territory.

Keywords: Community, Organization, Territory, Rural Tourism.

Chapter XXXVIII

SOCIAL MEDIA ADDICTION AND NOMOPHOBIA IN UNIVERSITY STUDENTS

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Abstract

Social media has become one of the most significant forms of communication and entertainment for young people. A descriptive study was conducted between July and December 2024 using a questionnaire on social media addiction and nomophobia. Objective: To identify the existence of social media addiction in university students, its harmful effects, and propose preventive measures. Method: A quantitative, correlational, cross-sectional study was conducted. An instrument was designed, based on previous studies, to update, improve, and validate the information. This instrument allows for the detection of both potential social media addiction and the presence of nomophobia in the study population. The sample size was calculated with a 95% confidence level and a 5% margin of error, resulting in a total of 385 cases. However, through a random selection process, information was collected from 392 university students. Results: Social media addiction was found to be at a medium-high level, with 40% of respondents having their social networks open all day; 24% were at moderate risk of social media addiction, and 5% were at high risk. The most relevant inferential results showed that: 25% had tried unsuccessfully to spend less time on social media; 36% used social media as escapism; and 25% had experienced some type of disruption in their social and family relationships due to social media.

Keywords: Addiction, internet, nomophobia, social networks.

Chapter XXXIX

BUSINESS MODEL AS A COMMERCIAL MANAGEMENT STRATEGY FOR PUBLIC SERVICES COMPANY

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Abstract

This study examined the uptake of emerging marketing trends in 68 micro, small and medium- sized enterprises in the Colombian department of Cesar. Using a quantitative, descriptive, cross- sectional design, data were collected through a structured survey administered between June 2024 and June 2025 and analysed with descriptive statistics. Findings reveal high adoption of social advertising (85 %), content marketing (60 %) and sustainability-oriented practices (55 %), whereas the use of artificial intelligence, data-driven personalisation and omnichannel strategies remains below 35 %. Internally, limited budgets (less than 10 % of marketing expenditure allocated to innovation) and a shortage of digital talent constrain progress; externally, poor connectivity and a thin local supply of technology providers create additional barriers. The study concludes that the gap between strategic awareness and technological execution can be narrowed through staggered investment, capability building and public-private partnerships that accelerate digital transformation.

Keywords: Competitiveness; Digitalization; Innovation; Marketing; Mipymes.

Chapter XL

DESIGN OF A MEDICAL CARE PROTOCOL FOR INDIVIDUALS AFFECTED BY SEXUAL VIOLENCE IN A HEALTHCARE INSTITUTION

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Abstract

The main objective of this research was to design a program based on the comprehensive health care protocol for victims of sexual violence in a first-level complexity IPS in the city of Bucaramanga, with the goal of optimizing user care. To achieve this, a mixed-methods study (quantitative and qualitative) was conducted using a non-experimental, cross-sectional descriptive design. Two data collection tools were employed: a checklist and semi-structured interviews. The study revealed that, while the IPS meets certain protocol requirements, such as progress in staff training on gender and rights issues, and the staff demonstrates knowledge in these areas, obstacles remain in the implementation of the protocol for the care of sexual violence victims. These challenges are reflected in the Sustainable Development Goals (SDGs), particularly Goal 10, which aims to reduce inequalities by promoting equal opportunities and minimizing outcome disparities. Additionally, the research highlighted the lack of modifications to the existing official protocol to address the specific needs of the institution, along with the necessity for continuous staff training. These actions are essential for ensuring comprehensive, humane, and efficient care for victims of sexual violence.

Keywords: comprehensive care, health entity, protocol, victims, sexual violence.

Chapter XLI

YOUTH EMPLOYMENT SITUATION IN COLOMBIA COMPARED TO THE GUIDELINES OF PUBLIC POLICY

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Abstract

The difficulties young people face in entering the labor market not only affect their individual well-being but also significantly impact several fundamental aspects of overall socioeconomic development. This article delves into the diverse circumstances, origins, and repercussions of these problems, in addition to analyzing statistical information that reflects the recent behavior of labor variables affecting young people. Statistics show that the employment situation of young people has deteriorated in absolute terms, reflecting the broader crisis affecting labor markets in general. Furthermore, despite some optimistic expectations, there have been no significant improvements compared to previous periods. Likewise, there is notable heterogeneity in the working conditions faced by young people, which varies according to factors such as educational level, gender, and family environment, among others. The research also highlights the tensions between young people's subjective perception of their employment situation and the harsh reality of the labor market. This review examines alternatives and proposals aimed at enhancing youth labor market participation, employability, gender equality, the promotion of entrepreneurship, and job creation. These strategies, if properly implemented, could contribute to more inclusive and equitable socioeconomic development.

Keywords: Youth, labor market, public policy.

Chapter XLII

SUSTAINABLE PRODUCTION AND CONSUMPTION: PROPOSAL OF A STRUCTURAL MODEL FOR THE ANALYSIS OF THE FACTORS THAT AFFECT ITS COMPLIANCE

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Abstract

The 2030 Agenda of the United Nations Organization represents the transition towards a more sustainable consumption attitude. Therefore, it is essential to investigate the variables that determine the change in consumers' attitude towards the Sustainable Development Goals. This work's objective was to carry out a diagnosis on the responsible consumption habits of the citizens of the city of Machala, Republic of Ecuador. For this, modeling of structural equations was applied. The results showed that the environmental attitude and knowledge determined the behavior of the responsible consumer. We can conclude that sustainable consumption models need not only consumers' participation but also the regulatory intervention of policymakers and the commitment of companies in their productive activities. In the future, we can replicate the methodology used for similar investigations in other study areas

Keywords: Sustainable development; environmental attitude; attitude towards health; consumer behavior.

Chapter XLIII

LANDSCAPE METRICS AND TERRITORIAL SUSTAINABILITY IN AN INTERVENED WATERSHED

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Abstract

This article aimed to generate a battery of landscape metrics to characterize the dynamics of deforestation and fragmentation in the Sogamoso River basin, which has been affected by the construction and operation of a hydroelectric reservoir. Methodologically, landscape metrics were identified and calculated at the class level using Fragstat v4.2.1 software. The results showed that the main fragmented vegetation covers were areas of herbaceous and shrub vegetation, gallery and riparian forests, dense forest, and open forest. It was concluded that the generation of landscape metrics contributes to assessing landscape fragmentation and obtaining a more comprehensive view of human actions in strategic ecosystems, which is crucial for land planning and environmental management, as well as for the protection and conservation of environmental services.

Keywords: Deforestation, Hydroelectric Reservoir, Fragmentation, Landscape Metrics, Sogamoso River.

Chapter XLIV

RESONANT LEADERSHIP: A THEORETICAL APPROACH IN THE UNIVERSITY CONTEXT

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Abstract

This research aimed to develop a theoretical approach to resonant leadership within the university context of the Administration program at the Rafael María Baralt National Experimental University, Mene Grande campus. A qualitative research approach was used, employing an interpretive paradigm and grounded in the phenomenological method, which allowed for the analysis and interpretation of the phenomenon in all its dimensions. Data was collected through participant observation and in-depth interviews. Key informants were six professors from the aforementioned program, selected because they are faculty members of the institution and voluntarily agreed to participate in the research. According to the findings, the informants believe that a professor as a resonant leader generates trust through their optimism and their conduct both inside and outside the classroom. This is understood as the professor's ability to connect emotionally with their students and colleagues, reflecting an enthusiastic attitude in them. They also consider the resonant leader to be visionary and a coach, with a democratic character, because they demonstrate an inspiring aptitude and act to foster a climate that responds to the motivations of their students, enhancing their potential by strengthening their self-

esteem. Furthermore, they pointed out that UNERMB's Mene Grande campus fulfills the functions of teaching, research, and outreach, but with a focus on community engagement through problem-based learning and the implementation of participatory action research processes, which generates socially useful knowledge and projects the university's social impact.

Keywords: Resonant leadership, university context, higher education.

Chapter XLV

CHARACTERIZATION OF CHOCOLATE-PRODUCING MSMES IN BOGOTÁ D.C.

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Abstract

The cacao–chocolate value chain has become a strategic sector in Colombia for economic and social development, generating employment and boosting local economies. In Bogotá, micro, small, and medium-sized enterprises (MSMEs) play a key role in cacao processing and in the diversification, innovation, and commercialization of chocolate products. However, many of these organizations face limitations in technological infrastructure, access to financing, and investment capacity, which reduces their competitiveness compared to larger companies and restricts their market positioning. In this context, integration strategies emerge as an alternative to address competition, optimize resources, and strengthen market presence both nationally and internationally. Nevertheless, before designing such strategies, it is essential to characterize the enterprises by identifying their strengths, weaknesses, productive capacities, degree of innovation, and level of articulation with other actors in the value chain. This characterization serves as the foundation for proposing integration models tailored to the realities of MSMEs and aimed at enhancing their competitiveness. The objective of this research was to characterize chocolate-producing MSMEs in Bogotá D.C., identifying their productive, organizational, and market capacities to generate a diagnostic that supports future integration and business strengthening strategies. A descriptive study was conducted with 12 MSMEs in the sector through semi-structured interviews addressing internal and external aspects of each company, such as product portfolio, technological level, innovation, and marketing strategies. The information was systematized in a comparative matrix that enabled the identification of strengths and weaknesses and the development of a preliminary sector diagnosis. The enterprises were classified as micro, small, and medium-sized, and analyzed across five dimensions: innovation, partnerships, marketing, operational challenges, and strategic vision. All companies develop new products, though with varying levels of formalization: micro-enterprises innovate in an artisanal manner, while medium-sized ones have consolidated R&D departments. The latter also maintain links with universities and business networks, whereas micro and small enterprises show nonexistent or informal partnerships. In terms of marketing, micro-enterprises rely on social media and local fairs, small

enterprises diversify across physical and digital channels, and medium-sized ones engage in institutional markets and export. All face supplier-related challenges, though with differing impacts. Structurally, micro-enterprises operate under family dynamics, small enterprises have defined roles, and medium-sized ones possess management teams and boards of directors. Regarding business projection, micro-enterprises aim for local consolidation, small enterprises seek national expansion, and medium-sized ones pursue internationalization. In conclusion, the characterization highlights the limitations and challenges specific to each enterprise size, while also revealing opportunities for cooperation and competitive strengthening. These findings provide valuable input for designing strategies aimed at the sustainable growth of Bogotá's chocolate sector. Derived from project INV-CIAS 3920 funded by Universidad Militar Nueva Granada – 2024.

Keywords: Organizational analysis, competitiveness, business characterization, cacao–chocolate value chain, integration.

Chapter XLVI

ARTIFICIAL INTELLIGENCE AS A SUPPORT TOOL IN PATIENT CARE IMPACT OF AI CHATBOTS ON HEALTH SERVICES MANAGEMENT

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Abstract

This research aims to measure the benefits of its implementation in terms of accessibility and satisfaction in the management of healthcare services at this institution. It describes the impact of AI chatbots on the management of healthcare services at the Divino Niño Foundation, specifically in providing timely information about the Divino Niño Foundation's services: medical consultations, ultrasounds, laboratory tests, medication bank, payment methods, promotions, and activities. This research used a quantitative approach with a quasi-experimental design, comparing data before and after the chatbot implementation. The study population included patients treated in the various medical services provided by the Divino Niño Foundation. A survey was conducted, followed by an analysis based on descriptive and inferential statistics. The implementation of the AI chatbot has shown a significant improvement in response times for information requests, optimizing communication and patient care. The technology used to design and configure the chatbot is a multi-channel platform for managing social media and WhatsApp messaging. The results show a considerable reduction in staff administrative burden, as well as increased user satisfaction with chat responses and 24/7 service availability. This study demonstrates the potential of chatbots to improve efficiency in healthcare settings.

Keywords: AI chatbot, patient services, medical consultations, information management.

Chapter XLVII

FINANCIAL PERSPECTIVE IN THE MULTISCALE ASSESSMENT OF PROFITABILITY AND RISK OF PHOTOVOLTAIC SYSTEMS

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Abstract

In the municipality of Aguachica, Cesar, the discussion surrounding the energy transition takes place within a context of high dependence on conventional energy sources and increasing tariff pressures. This paper examines the impact of fiscal and regulatory incentives on the economic feasibility of photovoltaic systems. This was achieved through surveys of end users, interviews with key stakeholders in the sector, and a systematic review of relevant documentation. The aim was to estimate important financial indicators such as Net Present Value (NPV), Internal Rate of Return (IRR), and the payback period. The results show that users identify savings in electricity consumption and the possibility of selling surplus energy as the primary motivating factors, while tax benefits strengthen project profitability and contribute to mitigating associated financial risks. It follows, therefore, that self-generation through photovoltaic systems represents an economically robust and environmentally sustainable alternative, suitable for promoting the consolidation of energy resilience at the regional level.

Keywords: energy supply, financial management, energy economics, energy policy, energy resources.

Chapter XLVIII

ACADEMIC PERFORMANCE AND LEARNING ANALYTICS IN UNIVERSITY STUDENTS OF THE STATISTICS COURSE IN VIRTUAL MODE

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Abstract

This study analyzes the relationship between academic performance and learning analytics retrieved from the Canvas platform, based on the experience of 403 third-level students enrolled in the Statistics course in virtual mode at the Digital University Institution of Antioquia. Using a quantitative descriptive–correlational approach, the analysis included grades from four evaluative activities weighted at 20 %, 25 %, 25 %, and 30 %, as well as the final course grade, together with interaction metrics recorded on the platform, specifically weekly visits and participations over an eight-week period. The results show favorable performance in the first two activities ($M = 69.6$ and $M = 70.8$), followed by a marked decline in AE3 ($M = 51.2$) and AE4 ($M = 54.6$), with a final average score of 60.8 points, slightly above the institutional passing threshold. Regarding platform interaction, peaks in visits were identified during activity submission weeks, while active participations remained very low, revealing a predominantly passive use of virtual resources, focused more on fulfilling evaluation requirements than on continuous learning. These findings highlight the need to implement pedagogical strategies that foster sustained participation in the virtual environment, through mandatory intermediate activities, continuous feedback, and diversified asynchronous spaces. Future research is projected to incorporate additional variables such as attendance at synchronous sessions and student sociodemographic characterization, with the aim of advancing toward predictive models that contribute to improving persistence and academic success in digital education settings.

Keywords: academic performance, learning analytics, statistics, virtual education

Chapter XLIX

COMMUNITY ACTION BOARDS: AN EFFECTIVE MECHANISM FOR CITIZEN PARTICIPATION AND INTEGRAL COMMUNITY DEVELOPMENT IN PASTO, NARIÑO

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Abstract

This study analyzes how Community Action Boards (JAC), essential mechanisms for citizen participation and community development in Pasto, Nariño, face challenges that limit their effectiveness, such as the lack of training for their leaders. A qualitative approach was used with document review, semi-structured interviews, and focus group interviews, categorizing the information into citizen participation, project management, resources, and leader training. The results showed that rural areas have greater participation, while trained leaders are more effective in managing resources and projects. The study concludes that ongoing training is key to the organizational effectiveness of JAC and recommends promoting accessible training programs, sustainable financing strategies, and organizational strengthening measures.

Keywords: Community Action Boards, Citizen Participation, Community Development, Leadership Training, Project Management.

Chapter L

ANALYSIS OF FAILURE DATA AS A TOOL FOR ESTABLISHING PREVENTIVE MAINTENANCE DATES

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Abstract

The historical data of failures in industrial equipment is an important input for statistical analysis aimed at improving processes and techniques of preventive maintenance (PM) in a company, in this project data are taken from failures in a period of time, The data are adjusted to a probability model for continuous data with the objective of estimating failure probabilities and counteracting with already consolidated preventive plans or equipment with predictive strategy, where the results will be key to propose changes in the preventive strategy of the assets, which is associated with significant cost savings and improvement of equipment reliability. The data analysis is supported with the use of a probability model for continuous data and all calculations will be done with the statistical software R-Studio.

Keywords: Maintenance strategy, Probability model, Failures.

Chapter LI

DIGITALIZATION AND FINANCIAL SUSTAINABILITY OF THE AGRIBUSINESS SECTOR: PERSPECTIVES FOR RESILIENCE, INNOVATION, AND CHANGE MANAGEMENT

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Abstract

This article addresses the challenge faced by agribusinesses in ensuring their sustainability and competitiveness in a dynamic environment marked by price volatility, difficulties in accessing financing, and digital transformation. The rationale lies in the need to adopt innovative financial, technological, and management strategies that improve business resilience. The objective of the study is to analyze how digitization and sustainable financial management strengthen the sector's ability to adapt to these challenges. The methodology includes a literature review, analysis of best practices, and a narrative of financial tools, such as financial indicators, dashboards, and activity-based costing. Among the main findings, it is noteworthy that the integration of technologies such as blockchain and predictive analytics, together with sustainable practices, improves transparency and efficiency. In conclusion, innovation in management and technology is essential for agribusinesses to adapt, strengthen their sustainability, and ensure their future growth.

Keywords: Agribusiness; agribusiness finance; financial management; digitalization in finance; financial sustainability

Chapter LII

SUSTAINABILITY REPORTING REGULATIONS IN COLOMBIA: A COMPREHENSIVE ANALYSIS

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Abstract

Investments with ESG criteria have taken on special relevance in today's business world. The recent emergence of sustainability reporting standards and frameworks has led to regulations in different jurisdictions for companies to adopt these standards to measure their ESG performance and project their medium- and long-term sustainability to different information users. In Colombia, government regulatory bodies have issued regulations that provide instruction on the implementation of ESG processes. The path taken by entities such as the Superfinanciera (Superintendency of Finance) is recognized for its strength in the region, serving as a benchmark in sustainable investment issues, with the green taxonomy being its flagship. Another contribution is the regulation of the five dimensions of BIC companies and, finally, the major commitment by 2025 by the Superintendencia of Companies to widespread ESG reporting, mainly in supervised entities.

Keywords: ESG Investments, Sustainability Reports, Government Regulatory Bodies

Chapter LIII

EXPLORATORY FACTOR ANALYSIS OF DIGITAL MATURITY IN ORGANISATIONS IN THE ALTIPLANO HIDALGUENSE REGION OF MEXICO BY SIZE

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Abstract

The aim of this research was to analyze the digital maturity of organizations in the Altiplano Hidalguense region of Mexico through an exploratory factor analysis. A quantitative, descriptive, and non-experimental approach was applied to a probabilistic sample of 75 companies, using the Forrester Digital Maturity Model. Data were processed with SPSS v.28 to assess reliability, factor extraction, and ANOVA tests. Six factors explaining 72% of the total variance were identified, emphasizing technological infrastructure, organizational flexibility, and digital leadership. No significant differences were found between company size and digital maturity level. It is concluded that digital maturity depends more on strategic and organizational capacities than on firm size.

Keywords: maturity, digital transformation, exploratory factor analysis, organizations, firm size.

Chapter LIV

FUSION OF HORIZONS AND TERRITORIAL MEMORY: THE ZENÚ HERITAGE AS A MEANS OF MAKING

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Abstract

This article analyzes elements of the architectural and cultural heritage of the Zenú people from the philosophical hermeneutics of Hans-Georg Gadamer. The aim is to understand how the notion of effective historicity allows us to interpret Zenú heritage not only as an object of conservation, but also as a living process of meaning-making between past and present. The methodology is qualitative, based on a hermeneutic-interpretive approach that combines documentary review, conceptual analysis of Gadamerian thought, and case studies of the material and symbolic expressions of the Zenú territory, particularly its system of architectural, archaeological, and artistic traditions. Among the findings, it is highlighted that Zenú territorial memory embodies a fusion of horizons where architectural practice reflects the continuity of an ecological and aesthetic rationality that redefines the relationship between community and landscape. The conclusions

maintain that Zenú heritage is a manifestation of historical understanding in action, in which tradition is not opposed to modernity, but rather is updated as an effective experience of being in dwelling. This hermeneutic approach suggests a critical way of thinking about heritage conservation from the perspective of lived history, and not solely from the monumentalization of the past.

Keywords: Heritage, tradition, architecture.

Chapter LV

TECHNOLOGICAL TOOL FOR RECORDING TEACHER ATTENDANCE AT THE POPULAR UNIVERSITY OF CESAR, AGUACHICA BRANCH, USING TECHNOLOGY

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Abstract

For any higher education institution, it is crucial to monitor and evaluate academic processes in order to ensure educational quality. Therefore, student dropout affecting the Universidad Popular del Cesar seccional Aguachica (UPC-SA), has been analyzed with the aim of identifying early signs of dropout, demotivation, and poor academic performance. This analysis was carried out in parallel with the institutional retention and well-being program (PEBI) and with data from SPADIES (System for the Prevention and Analysis of Dropout in Higher Education Institutions), where, for the 2023-2 period, first-semester students experienced a 23.25% dropout rate, and in the second semester of the same academic period, 31.75%; it indicated that they face significant difficulties in choosing their professional career due to the lack of educational resources that facilitate this decision. Consequently, the implementation of tools that provide more structured and detailed vocational guidance becomes essential to help students make more informed decisions regarding their professional future. The type of research carried out to address the issue is descriptive and applied, allowing for the comparison of variables through the evaluation of one or more of their attributes, including the various ways to present content associated with the web application; this provides guidance on professional vocation, academic activities, information, and promotion, helping users choose the most suitable career or program

based on their skills and competencies assessed through tests and artificial intelligence (AI); thus aiming to increase student retention and promote meaningful learning, reducing dropout rates during the first semesters at university through the use of the application “Oves – Vocational Guidance for Higher Education”.

Keywords: artificial intelligence, career guidance, student dropout, university adaptation, web application

Chapter LVI

CIRCULAR ECONOMY POLICIES IN LATIN AMERICA

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Abstract

The circular economy in Latin America is emerging as a key strategy for transitioning to a sustainable, resilient, and inclusive development model, unlike the traditional model focused on producing, consuming, and disposing. The circular economy proposes a systemic approach that prioritizes waste reduction, material reuse, innovation in production processes, and ecosystem regeneration. In this context, the current status of strategic approaches and implementation mechanisms for public policies on the circular economy in Latin America is analyzed in order to identify good practices, structural gaps, and opportunities for improvement in the transition to sustainable development models. The study is analytical, with a quantitative and descriptive approach that includes the analysis of official documents, roadmaps, laws, and national circular economy strategies in countries such as Colombia, Chile, Mexico, Peru, Argentina, and Brazil. Finally, it is concluded that countries such as Ecuador, Chile, Colombia, and Argentina, presenting percentages above the average obtained 7% show low levels of application in terms of the adoption of public policies in circular economy policy implementation that combine multisectoral approaches, including economic incentives and citizen participation, especially in sectors such as agribusiness, construction, plastics, and electronic waste. The exchange of experiences, principles of innovation, social inclusion, territorial development, climate finance, and regulatory harmonization is promoted. Countries such as Brazil and Mexico are still in the early stages of policy implementation.

Keywords: circular economy, sustainable development, public policies, waste reduction and reuse.

Chapter LVII

CAUSE-BASED MARKETING IN LOYALTY AND ORGANIZATIONAL PERFORMANCE IN MEXICAN COMPANIES

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Abstract

In the face of constant global changes, companies are forced to adapt to different marketing strategies to achieve efficient market performance. Therefore, this study aims to evaluate the effect of cause-related marketing on loyalty and organizational performance of Mexican small and medium-sized businesses. Methodologically, this research is approached from a quantitative perspective, with a non-experimental, cross-sectional-correlational design, applied to a sample of 200 companies in the State of Hidalgo, Mexico. The data were examined using exploratory factor analysis and multiple linear regression. The results allowed for the validation of two independent models. The first shows that cause-related marketing positively influences consumer loyalty, digital communication and visibility, internal constraints, organizational challenges, business resources and investment, and the company's emotional image. The second model was validated with the impact of cause-related campaigns in the areas of market visibility, increased sales, strengthening of corporate reputation, company image, and the establishment of strategic alliances, all of which have a significant influence on organizational performance. In conclusion, cause-related marketing strategies strengthen relationships with consumers and can also generate internal organizational benefits.

Keywords: Cause-related marketing; consumer loyalty; organizational performance; corporate image; small and medium-sized businesses

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