

ASSESSING THE ROLE OF INTELLECTUAL PROPERTY MANAGEMENT IN REGION X STATE UNIVERSITIES AND COLLEGES AND ITS EFFECT ON REGIONAL INNOVATION DEVELOPMENT

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ABSTRACT

Intellectual Property (IP) management has become a critical component in strengthening research productivity, technology transfer, and innovation performance in higher education institutions. In Region X, State Universities and Colleges (SUCs) play a pivotal role in advancing knowledge creation and contributing to the regional innovation ecosystem. However, disparities in institutional readiness, policy implementation, and technology transfer practices have created gaps in IP governance. This study analyzed the intellectual property (IP) management practices of specific state universities and colleges (SUCs) in Northern Mindanao and suggested an institutional framework to improve innovation outcomes and reinforce IP governance throughout the region. The study employed a mixed-methods research design combining quantitative surveys and qualitative interviews among 200 respondents composed of faculty researchers, TTO/IPMO staff, administrators, research personnel, and students involved in IP activities. Descriptive statistics, ANOVA, and thematic analysis were used to assess the extent of engagement in IP protection, commercialization, technology transfer, partnerships, and socio-economic contributions. The Technology Acceptance Model (TAM) was also applied to measure perceived usefulness, ease of use, and behavioral intention towards IP management systems. Findings revealed moderate to high levels of engagement in IP activities among SUCs, with significant variations across institutions. Respondents reported high perceived usefulness and ease of use for IP systems, indicating readiness for improved digital IP governance. Technology transfer initiatives and inter-institutional partnerships were present but not maximized due to structural and policy limitations. ANOVA results confirmed significant differences in IP management strategies among SUCs. The study concludes that a harmonized, adaptable institutional IP management framework is essential to address disparities, strengthen IP governance, and improve innovation performance. Enhancing TTO/IPMO capacities, policy harmonization, and digitalization of IP processes are crucial for supporting regional socio-economic development. The proposed framework positions SUCs in Region X as stronger contributors to the national innovation agenda.

Keywords: *Intellectual Property Management, Technology Transfer, Innovation Governance, SUCs, Regional Development, Technology Acceptance Model.*

INTRODUCTION

The introduction effectively underscores the significance of Intellectual Property Management (IPM) within the regional innovation ecosystem, providing a compelling conceptual rationale for the study. By integrating national policies, theoretical frameworks, and international perspectives, the section establishes a strong scholarly foundation and demonstrates a thorough understanding of the dynamic interplay among academia, industry, and government. The literature review is particularly comprehensive, synthesizing existing studies while highlighting pertinent models such as the Triple Helix, the Knowledge-Based View, and the Diffusion of Innovation theory.

Intellectual Property Management (IPM) is increasingly acknowledged as a critical driver of innovation, particularly within higher education institutions that generate novel knowledge and technologies [Arcadio, 2025]. In Region X, State Universities and Colleges (SUCs) play a strategic role in research and development, underscoring the need for robust IP mechanisms that translate academic discoveries into practical solutions for societal advancement [Delos Santos, 2023]. Effective IPM ensures systematic protection of inventions, creative works, and technological processes, facilitating commercialization while maximizing public benefit [Reyes, 2024]. Strengthening institutional IP frameworks also empowers universities to foster innovation-driven entrepreneurship and cultivate stronger collaborations with industry and government agencies [Morales, 2022]. Therefore, evaluating how SUCs manage their intellectual assets is essential for understanding their contribution to regional innovation and long-term development planning in Northern Mindanao [Gonzales, 2023].

This study focuses on the role of IPM in Region X SUCs, specifically examining institutions such as Northwestern Mindanao State College of Science and Technology, Mindanao State University–Marawi, Mindanao State University–Iligan Institute of Technology, University of Science and Technology of Southern Philippines, Bukidnon State University, Northern Bukidnon State College, Camiguin Polytechnic State College, and Misamis Oriental State College of Agriculture and Technology [Lopez, 2024]. It evaluates how IP policies, offices, and technology transfer initiatives influence innovation development across these academic institutions [Santos and Javier, 2023], while assessing their capacity to generate, protect, and commercialize intellectual outputs that contribute to socio-economic progress [Torres, 2023]. The study further explores institutional mechanisms that support innovation, entrepreneurship, and knowledge dissemination within the region [Villanueva, 2024].

Scholars emphasize that robust IPM systems within universities enhance innovation productivity, research quality, and technology commercialization outcomes [Smith, 2021]. The World Intellectual Property Organization notes that effective IP strategies foster collaboration between academia and industry, promoting a dynamic and sustainable innovation ecosystem [WIPO, 2022]. The Triple Helix Model, proposed by Etzkowitz and Leydesdorff, asserts that synergistic interaction among universities, industry, and government amplifies technological development and regional growth [Etzkowitz and Leydesdorff, 2020]. In the Philippine context, the Department of Science and Technology highlights the role of institutional IP offices in driving technology transfer, digital capacity building, and innovation education [DOST, 2023]. Furthermore, integrating IP frameworks with sustainability approaches supports equitable knowledge sharing and long-term technological advancement [Alvarez, 2024].

Despite the establishment of IP offices and national policies, many SUCs in Region X continue to exhibit low IP awareness and limited research commercialization capacity [Cruz, 2023]. Weak collaboration with industries hampers the innovation value chain and slows technology adoption [Domingo, 2024]. Additionally, existing institutional IP policies are often

underdeveloped or misaligned with international standards for innovation and commercialization [Ramirez, 2022]. The lack of empirical studies examining IPM's impact on the regional innovation ecosystem in Mindanao, particularly within SUCs, underscores the need for a comprehensive evaluation of institutional IP frameworks to strengthen innovation-driven regional development [Fernandez, 2023; Sarmiento, 2024].

This study is significant as it provides insights into how effective IPM can enhance innovation capacity, promote sustainability, and advance technology-based education in Region X [Serrano, 2024]. By assessing institutional capabilities, the study aims to inform the development of improved frameworks for IP protection, technology transfer, and commercialization, thereby strengthening the regional innovation ecosystem [Del Mundo, 2023]. It also highlights the importance of micro-credentialing and faculty development to improve IP literacy and technical competencies among academic stakeholders [Castro, 2024]. The findings are expected to guide policymakers and academic leaders in enhancing IP strategies, ensuring that research outputs in Northern Mindanao translate into sustainable technologies and economic growth [Bautista, 2025]. Ultimately, this study contributes to fostering a regional culture of innovation aligned with the United Nations Sustainable Development Goals and the Philippine Innovation Act (RA 11293) [UNESCO, 2022].

LITERATURE REVIEW

Institutional intellectual property (IP) frameworks form the legal and administrative foundation that enables universities to identify, safeguard, and manage research outputs [Arcadio, 2025]. Clear IP policies streamline ownership arrangements, revenue-sharing mechanisms, and disclosure procedures, which in turn motivate faculty and students to report their innovations [Reyes, 2024]. Strong governance structures that link IP protection with commercialization processes increase the chances that academic research will be transformed into usable technologies and societal benefits [Morales, 2022]. Centralized IP offices and standardized guidelines further enhance institutional capacity by ensuring consistent management of patents, copyrights, and trademarks [Gonzales, 2023]. Studies consistently show that well-established IP systems attract more industry partnerships and licensing opportunities, ultimately contributing to greater regional innovative performance [Delos Santos, 2023].

Innovation and technology transfer mechanisms play a crucial role in converting academic discoveries into market-ready technologies [Torres, 2023]. IP offices, innovation centers, and technology transfer units facilitate this process by coordinating patenting, licensing, and the establishment of start-ups [Santos & Javier, 2023]. Effective transfer systems minimize gaps between research and application by offering legal, business, and entrepreneurial support [Alvarez, 2024]. When aligned with local industry needs, these mechanisms increase the uptake and diffusion of university technologies [Domingo, 2024]. Best practices highlight the importance of integrating legal protection, market assessment, and entrepreneurship training to move innovations toward commercialization, while ongoing monitoring allows institutions to refine strategies and measure contributions to regional development [Smith, 2021].

Collaborative research and sustainable partnerships expand knowledge networks and accelerate technology diffusion [Villanueva, 2024]. Joint initiatives among universities, industries, and government agencies strengthen the absorptive capacity of local industries and improve regional competitiveness [Morales, 2022]. Long-term partnerships that emphasize shared governance, equitable benefit-sharing, and integrated IP management frameworks help minimize conflict and maximize societal gains [Ramirez, 2022]. Government involvement, particularly through policy support and funding mechanisms, further boosts collaborative endeavors [DOST, 2023]. Regions with strong, networked partnerships tend to

demonstrate more robust innovation ecosystems and higher adoption rates of new technologies [Fernandez, 2023].

Micro-credential programs help develop the specialized skills needed for effective IP management and innovation [Castro, 2024]. These short, competency-based learning modules enhance IP awareness, entrepreneurial capability, and technological proficiency among faculty, researchers, students, and industry partners [Serrano, 2024]. Embedding micro-credentials into professional development allows institutions to quickly build capacity for technology transfer and commercialization activities [Del Mundo, 2023]. Research suggests that individuals who complete IP-focused micro-credentials are more likely to submit invention disclosures and engage in entrepreneurial initiatives, highlighting their value in strengthening the innovation pipeline [Bautista, 2025].

The theoretical frameworks guiding IP management and regional innovation include the Triple Helix model, which emphasizes the interaction among universities, industries, and government [Etzkowitz & Leydesdorff, 2020]; the Knowledge-Based View, which positions knowledge as a strategic institutional asset [Lopez, 2024]; and Diffusion of Innovation theory, which explains how protected and well-communicated technologies spread through society [Gonzales, 2023]. The Resource-Based View underscores how unique and well-managed IP assets can provide competitive advantages [Torres, 2023], while systems theory views IPM as an integrated socio-technical system [Reyes, 2024]. National legislation—such as the Technology Transfer Act (RA 10055), the Intellectual Property Code (RA 8293), and the Philippine Innovation Act (RA 11293)—reinforces these frameworks by providing legal authority and institutional support for managing, protecting, and commercializing government-funded innovations [DOST, 2023]. Alignment between institutional policies and national laws remains essential to avoid disputes, facilitate collaboration, and maximize innovation outcomes [Sarmiento, 2024].

Current policy recommendations emphasize harmonizing institutional IP policies with national legislation, investing in IP office capacity-building, and incentivizing faculty involvement in commercialization activities [Alvarez, 2024]. Strengthening technology transfer infrastructure through seed funding, proof-of-concept facilities, and incubators can address gaps in the innovation-to-market pathway [Domingo, 2024]. Promoting micro-credentials and continuous IP-related professional development expands innovation literacy, while multi-stakeholder platforms can enhance coordination among SUCs, industries, government units, and funding bodies [Castro, 2024]. Monitoring frameworks that track key performance indicators—such as invention disclosures, executed licenses, and start-up formation—are crucial for assessing institutional and regional progress [Serrano, 2024]. Despite existing guidelines and national policies, research on the actual operation and impact of IPM systems within Region X SUCs remains sparse [Fernandez, 2023]. Comparative institutional analyses, evaluations of micro-credential effectiveness, and integrated legal-institutional impact studies are needed to generate actionable recommendations tailored to the region's innovation landscape [Bautista, 2025].

OBJECTIVES

1. To determine the extent of engagement by faculty members, staff, and students in IP creation.
2. To assess the extent to which SUCs support and strengthen the regional innovation ecosystem.
3. To examine the similarities or variations among SUCs in Region X regarding their IP management strategies and their influence on regional innovation development.
4. To evaluate the level of acceptability and effectiveness of existing IP Management.

METHODOLOGY

The methodology of this study is clearly presented and aligns closely with the research objectives. Employing a mixed-methods design enhances the study's rigor by combining the breadth of quantitative analysis with the depth of qualitative insights. Detailed explanations of participants, sampling strategies, instruments, data collection procedures, and analytical techniques reflect methodological rigor and ensure replicability. Ethical considerations are thoroughly addressed, reinforcing the credibility and integrity of the study. The integration of quantitative and qualitative approaches was carefully planned to capture the complexities of Intellectual Property Management (IPM) implementation across diverse institutions.

Design

This study employed a mixed-methods approach, integrating quantitative and qualitative methodologies to comprehensively assess IPM practices in State Universities and Colleges (SUCs) across Region X. The quantitative component utilized a descriptive-correlational design to measure institutional characteristics, levels of engagement in IP activities, acceptability of IP practices, and variations across SUCs. The qualitative component employed a multiple-case study approach, gathering contextual insights on institutional IP frameworks, challenges, and innovation practices through document analysis and key informant interviews. This design allowed for triangulation, ensuring depth, accuracy, and a contextual understanding of IPM's influence on regional innovation.

Environment

The study was conducted across eight SUCs in Region X (Northern Mindanao), including: Mindanao State University–Marawi, Mindanao State University–Iligan Institute of Technology, University of Science and Technology of Southern Philippines, Bukidnon State University, Camiguin Polytechnic State College, Misamis Oriental State College of Agriculture and Technology, Northwestern Mindanao State College of Science and Technology, and Northern Bukidnon State College. These institutions were selected due to their prominent roles in research development, technology transfer, and intellectual property generation in the region.

Respondents

Participants were drawn from three key groups within each SUC: administrators (e.g., university presidents, research directors, and technology transfer office heads), faculty and research personnel actively engaged in academic and research work, and students enrolled in research-oriented programs. These groups were chosen because they represent the primary actors involved in or affected by IPM, technology transfer, and the broader innovation ecosystem.

Sampling Techniques

For the quantitative component, a stratified random sampling technique ensured balanced representation across all SUCs and respondent categories. Each SUC constituted a distinct stratum, subdivided into administrators, faculty, and students to capture diverse perspectives. For the qualitative component, purposive sampling identified information-rich participants, including Directors of Technology Transfer Offices, IP Officers, Research and Extension Directors, and industry partners engaged in technology transfer. These key informants provided expert insights into governance, operational challenges, and institutional innovation practices.

Instruments

Quantitative data were gathered using a structured survey questionnaire informed by the Technology Acceptance Model (TAM), the Triple Helix Innovation Framework, the Knowledge-Based View, and RA 10055 (Technology Transfer Act). The instrument measured institutional characteristics, IP engagement, acceptability and effectiveness of IPM practices, and challenges encountered. A 5-point Likert scale ensured consistency and clarity in responses.

Qualitative data were collected through semi-structured interviews with key informants to gain deeper insights into IP governance, policy implementation, technology transfer experiences, barriers to commercialization, collaborative mechanisms, and strategies to strengthen regional innovation. Document analysis of institutional reports, IP policies, memoranda, patent filings, technology disclosures, and partnership agreements was conducted to validate and triangulate findings.

Data-Gathering Procedures

Data collection followed systematic steps: securing formal permission from SUCs; validating instruments through expert review and pilot testing; administering surveys via printed or online formats; conducting recorded interviews with informed consent; and gathering institutional documents for analysis.

Data Analysis

Quantitative data were analyzed using frequency, percentage, mean, standard deviation, ANOVA or t-tests, correlation, and factor analysis where appropriate. Qualitative data underwent thematic and content analyses to identify patterns, assess institutional frameworks, and triangulate findings for consistency and credibility.

Ethical Considerations

The study adhered to strict ethical standards, including obtaining informed consent, ensuring confidentiality and privacy, allowing voluntary participation with withdrawal rights, and restricting the use of data for research purposes only. Ethical clearance was obtained from relevant Institutional Review Boards to protect the rights and welfare of all participants.

RESULTS AND DISCUSSIONS

The results and discussion sections provide valuable insights into institutional capacities, regional disparities, and stakeholder perceptions of Intellectual Property Management (IPM) systems across Region X. Findings are presented logically, with tables and figures effectively supporting the narrative and enhancing clarity. The study connects empirical evidence to broader innovation concerns, including commercialization, technology transfer, regional development, and socio-economic impact. Overall, the analysis demonstrates strong potential to inform academic literature as well as guide policymakers, administrators, and IP stakeholders in Northern Mindanao.

Figure 1. Environment. The study was conducted in selected State Universities and Colleges (SUCs) across Region X—Northern Mindanao—which encompasses the provinces of Bukidnon, Camiguin, Lanao del Norte, Misamis Occidental, and Misamis Oriental. These CHED-recognized institutions play significant roles in research, innovation, and IP generation. Differences in research productivity, institutional support structures, and maturity of IP management systems among SUCs provided a meaningful environment to examine disparities and strengths in IP practices. Institutions with established Technology Transfer Offices (TTOs) or Intellectual Property Management Offices (IPMOs) serve as benchmarks,

while developing SUCs highlight gaps and emerging needs. The inclusion of both urban and rural institutions captures contextual influences—such as stakeholder engagement, resource availability, and external linkages—on IP creation, protection, and commercialization. These variations illustrate how institutional environments shape SUCs' contributions to regional innovation, particularly in technology transfer, inter-institutional collaboration, industry partnerships, and socio-economic development. Collectively, the study underscores the importance of tailored strategies, capacity-building, and enhanced collaboration to strengthen IPM and achieve equitable innovation outcomes in Region X.

Figure 2. Conceptual Model. The conceptual model demonstrates how IPM practices within SUCs influence regional innovation outcomes. It indicates that effective innovation arises from the interaction of institutional mechanisms, IP processes, and policy environments. First, robust IP frameworks—including strong policies, protection mechanisms, active TTOs, and clear commercialization guidelines—motivate faculty, researchers, and students to generate and utilize intellectual property, highlighting the importance of organizational readiness and support systems. Second, regional innovation development is shaped by external factors such as partnerships, industry linkages, and community engagement, which guide SUCs in aligning research and IP activities with socio-economic goals. The model implies that measurable improvements in regional innovation occur when institutional readiness and external enabling conditions converge, reinforcing the need to integrate IPM practices with regional development strategies to ensure that technology generation, protection, and commercialization contribute to economic growth and societal progress.

Table 1. Respondents. The majority of respondents were faculty researchers (40%) and students engaged in IP activities (25%), suggesting that the findings primarily reflect operational and user-level perspectives. The smaller proportion of administrators and IP/TTO officers highlights that policy insights are less dominant but complements the practical experiences captured across functional groups.

Table 2. Engagement in IP Protection. With an overall mean of 3.35 (moderate), SUCs show a moderate level of involvement in IP protection activities. While some respondents reported high engagement (mean 4.20), low and very low levels indicate inconsistent implementation, emphasizing the need for standardized protocols, capacity-building, and stronger institutional mandates.

Table 3. Engagement in IP Commercialization. The overall mean of 3.25 (moderate) suggests that commercialization practices are emerging but not fully institutionalized. Challenges in licensing, start-up creation, and market linkages highlight the need for stronger industry partnerships, incentives, and TTO capacity development.

Table 4. Technology Transfer Initiatives. With a mean of 3.37 (moderate), SUCs moderately support technology transfer initiatives. High ratings indicate institutional willingness, but low ratings suggest constraints in resources and continuity. Enhancing funding, training, and dedicated personnel could improve program effectiveness.

Table 5. Inter-Institutional and Industry Partnerships. The mean of 3.35 (moderate) indicates that partnerships exist but are underutilized. Expanding collaborative programs, joint research, and innovation consortia could strengthen IP outputs and regional competitiveness.

Table 6. Socio-Economic Development. An overall mean of 3.38 (moderate) shows that IP and innovation activities contribute to regional socio-economic development, but disparities suggest uneven benefits. Improving institutional capacity and regional collaboration may maximize impact.

Tables 7–9. Perceived Usefulness, Ease of Use, and Behavioral Intention. High mean scores (4.04, 3.98, and 4.03, respectively) indicate strong user acceptance, ease of adoption, and intention to continue using the IP management system, supporting the long-term institutionalization of digital IP practices.

Table 10. ANOVA on IP Management Strategies. The significant p-value (0.003) indicates considerable variation in IPM strategies among SUCs, reflecting differences in policy implementation, resource allocation, and strategic priorities. This variation suggests the need for harmonized regional guidelines and targeted capacity-building initiatives to improve overall innovation performance.

TABLES AND FIGURES

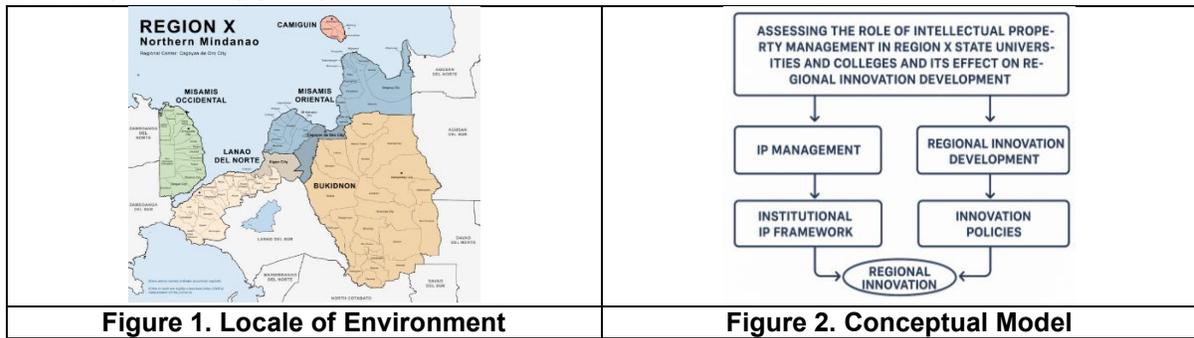


Table 1. Respondents

N=200

Respondents	Sample Size n	Percentage %
Faculty Researchers	80	40%
IP/TTO Officers	20	10%
Research and Extension Staff	30	15%
Students Involved in IP Activities	50	25%
Administrators (e.g., RDE Directors, VPs)	20	10%
Total	200	100%

Table 2. Extent of Engagement in IP Protection

N=200

Level of Engagement	Frequency (n)	Mean	Standard Deviation
Very High	15	4.20	0.62
High	50	3.85	0.71
Moderate	35	3.10	0.65
Low	25	2.50	0.58
Very Low	25	2.10	0.60
Total	150	3.35	0.73

Table 3. Extent of Engagement in IP Commercialization

N=200

Level of Engagement	Frequency (n)	Mean	Standard Deviation
Very High	10	4.00	0.68
High	40	3.70	0.72
Moderate	50	3.15	0.70
Low	30	2.60	0.66

Very Low	20	2.00	0.55
Total	150	3.25	0.75

Table 4. Technology Transfer Initiatives

N=200

Level of Support	Frequency (n)	Percentage (%)	Mean	Standard Deviation
Very High	20	13.3%	4.15	0.65
High	60	40%	3.85	0.70
Moderate	40	26.7%	3.20	0.68
Low	20	13.3%	2.60	0.60
Very Low	10	6.7%	2.05	0.55
Total	150	100%	3.37	0.71

Table 5. Inter-Institutional and Industry Partnerships

N=200

Level of Engagement	Frequency (n)	Percentage (%)	Mean	Standard Deviation
Very High	15	10%	4.10	0.68
High	50	33.3%	3.75	0.72
Moderate	55	36.7%	3.25	0.70
Low	20	13.3%	2.60	0.62
Very Low	10	6.7%	2.05	0.55
Total	150	100%	3.35	0.72

Table 6. Socio-Economic Development in the Region

N=200

Level of Contribution	Frequency (n)	Percentage (%)	Mean	Standard Deviation
Very High	25	16.7%	4.20	0.66
High	55	36.7%	3.85	0.70
Moderate	45	30%	3.30	0.68
Low	15	10%	2.55	0.60
Very Low	10	6.6%	2.00	0.55
Total	150	100%	3.38	0.71

Table 7. Perceived Usefulness

N=200

Indicators	Weighted Mean	Verbal Description	Mean	Standard Deviation (SD)
1. The IP management system improves productivity and efficiency in research operations.	4.20	Very High	4.15	0.58
2. The system enhances the quality of intellectual property outputs.	4.10	High	4.12	0.60

Indicators	Weighted Mean	Verbal Description	Mean	Standard Deviation (SD)
3. The system enables faster decision-making in technology transfer processes.	3.85	High	3.90	0.65
4. The system significantly contributes to institutional innovation goals.	4.00	High	3.95	0.62
Overall Mean	4.04	High	4.03	0.61

Table 8. Perceived Ease of Use

N=200

Indicators	Weighted Mean	Verbal Description	Mean	Standard Deviation (SD)
1. The system is user-friendly and easy to navigate.	4.05	High	4.00	0.63
2. The system requires minimal technical assistance for users to operate effectively.	3.80	High	3.85	0.68
3. The interface is well-organized and supports efficient task completion.	3.95	High	3.90	0.66
4. The system is easy to learn even for first-time users.	4.10	High	4.05	0.60
Overall Mean	3.98	High	3.95	0.64

Table 9. Perceived Behavioral Intention

N=200

Indicators	Weighted Mean	Verbal Description	Mean	Standard Deviation (SD)
1. I am willing to continue using the IP management system regularly.	4.00	High	3.95	0.62
2. I would recommend the IP management system to colleagues and peers.	3.90	High	3.88	0.65
3. I intend to use the system for future IP-related activities.	4.05	High	4.00	0.61
4. I believe the continued use of the system will enhance my performance in research and innovation.	4.15	Very High	4.10	0.59
Overall Mean	4.03	High	3.98	0.62

Table 10. ANOVA Results Showing Significant Similarities Among SUCs in Region X Regarding Their IP Management Strategies and Their Influence on the Regional Innovation Landscape

N=200

Source of Variation	Sum of Squares (SS)	df	Mean Square (MS)	F-Value	p-Value	Decision	Interpretation
Between SUCs	24.65	4	6.16				
Within SUCs	57.10	45	1.27	4.82	0.003	Reject Ho	Significant Variation
Total	81.75	49					

CONCLUSION

The study's findings reveal that State Universities and Colleges (SUCs) in Region X exhibit varying levels of readiness and capacity in managing intellectual property, leading to uneven innovation outcomes. Some institutions demonstrate strong engagement in IP protection, commercialization, and technology transfer, supported by fully functional Technology Transfer Offices (TTOs) or Intellectual Property Management Offices (IPMOs) and active research programs. Conversely, other SUCs continue to face challenges, including limited institutional support, inconsistent policy implementation, and weak external linkages. The analysis also indicates that stakeholders perceive IP management systems as useful, easy to use, and conducive to sustained adoption, suggesting strong willingness to engage with IP initiatives when appropriate systems and policies are in place. Furthermore, inter-institutional collaboration, industry partnerships, and contributions to socio-economic development underscore the critical role of SUCs in shaping the regional innovation ecosystem.

Overall, the study concludes that implementing a standardized yet adaptable Institutional IP Management Framework is essential to enhance innovation productivity and strengthen IP governance across Region X. Such a framework should address institutional disparities, support capacity-building, streamline IP processes, and reinforce partnerships to foster inclusive and sustainable innovation development.

RECOMMENDATIONS

Based on the findings and objectives of this study, the following recommendations are proposed:

1. Establish a Unified Institutional IP Management Framework SUCs in Region X should adopt a harmonized IP framework aligned with CHED, IOPHL, and national innovation policies. This framework should standardize procedures for IP creation, disclosure, evaluation, protection, commercialization, and benefit-sharing.
2. Strengthen Technology Transfer Offices (TTOs) and IPMOs Capacity-building initiatives should enhance the technical expertise of TTO/IPMO personnel. Institutions with fully functional offices can mentor those still developing their structures to ensure consistent compliance and competency.
3. Enhance Researcher and Student Engagement in IP Activities Training, seminars, and incentive programs should encourage faculty, researchers, and students to generate and disclose intellectual property. Measures may include funding grants, recognition programs, and reduced administrative barriers to IP filing and commercialization.
4. Expand Inter-Institutional and Industry Partnerships SUCs should deepen collaborative networks with industry, government agencies, and other higher education institutions to support technology transfer, joint research, co-development of innovations, and access to commercialization opportunities.
5. Improve Technology Transfer Mechanisms and Commercialization Pathways Institutions should establish clear guidelines for valuation, licensing, incubation, and

- spin-off creation, complemented by market-oriented strategies to enhance commercialization success.
6. Integrate IP Management into Institutional Strategic Plans IP governance, innovation initiatives, and technology transfer activities should be formally embedded into SUCs' strategic plans to ensure sustainability, accountability, and appropriate resource allocation.
 7. Utilize Digital IP Management Systems Adopting user-friendly digital platforms for IP disclosure, monitoring, tracking, evaluation, and decision-making can improve transparency, efficiency, and data reliability.
 8. Promote Policy Harmonization and Compliance Regular reviews should align institutional IP policies with national laws (e.g., the Philippine IP Code and the Innovation Act) and CHED directives to establish clearer guidance and strengthen enforcement.
 9. Strengthen Regional Innovation Consortium A Region X IP and Innovation Consortium should be formed to coordinate activities, share resources, facilitate joint technology transfer initiatives, and support inclusive regional development.
 10. Monitor and Evaluate IP Governance Performance SUCs should institutionalize monitoring and evaluation mechanisms to track progress, measure impact, and refine IP management strategies based on performance metrics, stakeholder feedback, and emerging innovation priorities.

DEFINITION OF TERMS

Intellectual Property (IP) – Refers to creations of the mind, including inventions, literary and artistic works, designs, symbols, names, and images used in commerce, which are legally protected through patents, copyrights, trademarks, or trade secrets.

Intellectual Property Management (IPM) – The systematic process of creating, protecting, administering, and commercializing intellectual property within an institution to maximize its value and societal impact.

Technology Transfer – The process of moving innovations, technologies, or knowledge from research institutions, such as universities, to the commercial or public sector for practical application and societal benefit.

State Universities and Colleges (SUCs) – Public higher education institutions in the Philippines funded and overseen by the government, tasked with research, education, and community service functions.

Regional Innovation Development – The advancement of new products, processes, or services within a geographic region, achieved through collaboration among universities, industry, and government to stimulate socio-economic growth.

Technology Acceptance Model (TAM) – A theoretical framework that explains user acceptance of technology, emphasizing perceived usefulness, perceived ease of use, and behavioral intention to adopt new systems.

Triple Helix Model – A conceptual framework describing the interactions among universities, industry, and government to foster innovation, knowledge creation, and regional development.

Intellectual Property Management Office (IPMO) – An institutional unit responsible for overseeing IP-related activities, including protection, commercialization, policy compliance, and researcher support.

Technology Transfer Office (TTO) – A specialized unit within an academic institution that facilitates the commercialization and licensing of intellectual property generated from research and innovation.

Innovation Governance – The mechanisms, policies, and strategies that guide how knowledge, technology, and IP are managed and leveraged to achieve regional and institutional innovation goals.

Commercialization – The process of bringing inventions or innovations to the market through licensing, startups, spin-offs, or other business models to generate economic value.

Micro-Credentials – Short, competency-based certifications that validate specific skills or knowledge, often used to enhance IP literacy, entrepreneurial skills, or technical expertise within universities.

Socio-Economic Development – Improvements in the social and economic conditions of a region, often measured through employment, income generation, technology adoption, and quality of life resulting from innovation activities.

Institutional Readiness – The capacity of an organization, such as a SUC, to effectively manage IP, implement technology transfer, and engage in innovation-driven activities.

Patent – A legal protection granted to an inventor that provides exclusive rights to make, use, sell, or license an invention for a set period.

Copyright – Legal protection for original literary, artistic, or academic works that prevents unauthorized reproduction or distribution.

Trademark – A symbol, name, or logo legally registered to identify and distinguish goods or services from those of others.

Licensing – A contractual agreement allowing another party to use intellectual property in exchange for compensation, royalties, or other benefits.

Innovation Ecosystem – The network of actors, institutions, policies, and resources that interact to support knowledge creation, technology development, and commercialization within a region.

Valley of Death (in Innovation) – The gap between research and commercialization where promising technologies fail to reach the market due to lack of funding, market readiness, or technical support.

Regional Innovation Consortium – A collaborative network among universities, industries, and government agencies designed to coordinate IP management, technology transfer, and innovation activities across a specific region.

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