AI-Augmented Legal Ascendancy for Efficient Adjudication of Intellectual Property Disputes: Assessing Adoption Conundrum in Nigerian Supply Chain Management

Kene-Unwana Trenchard Ibia, LLB, LLM, PhD (In view)
Lecturer, Faculty of Law, Topfaith University, Mkpatak
Akwa Ibom State, Nigeria
Email: keneunwanaibia@gmail.com

Onyekwere Nkechinyere T.A., LLB, LLM, PhD (In view)
Senior Lecturer, Department of Social Sciences
Federal Polytechnic, Nekede, Owerri, Imo State, Nigeria
Email: ntaonyekwere19@yahoo.com

Esther Edet Archibong, LLB, LLM (In View)
Lecturer, Department of Social Sciences
Federal Polytechnic, Nekede, Owerri, Imo State, Nigeria.
Corresponding Email: estherwilliams.esq@gmail.com
DOI: 10.56201/JLGP.v9.no2.2024.pg50.63

Abstract

In contemporary Nigerian supply chain management (SCM), the adjudication of intellectual property rights (IPRs) has become a significant concern for legal professionals. AI-Augmented analytics has recently emerged as a promising solution for resolving disputes and ensuring IPR protection. This paper examines the role of AI-Augmented analytics in adjudication, highlighting its potential to improve efficiency, accuracy, and fairness in IPR disputes within Nigerian SCM. The study identifies several barriers to the effective adoption of AI-Augmented analytics for IPR adjudication, including inconsistent data collection, inadequate infrastructure, unreliable internet, and insufficient technical support. Additionally, cultural resistance, ethical concerns, and a lack of adequate collaboration among stakeholders including government agencies, the judiciary, private sectors, and academia further complicate the effective implementation. To address these challenges, the researchers recommend that government and stakeholders in SCM should establish clear guidelines for AI use in intellectual property rights (IPR) adjudication to ensure compliance with laws. Foster partnerships among government agencies, private companies, legal experts, and academia to enhance skills of legal practitioners and AI developers through targeted training. Implement transparent AI systems with explainable results to build stakeholder trust. Create standardized procedures for evaluating AI performance in IPR adjudication. Leverage public-private partnerships to develop AI tools for specific challenges. Conduct pilot projects to test AI applications before wider implementation and implement robust data protection measures.

Keywords*: AI-Augmented Analytics, Supply Chain Management, Intellectual Property Rights, Nigeria*

Introduction

The term supply chain management (SCM) emerged during the 1980s, incorporating key business processes that span from end-users to initial suppliers.[1] Supply Chain Management (SCM) is a strategic methodology employed to oversee manufacturers, distributors, warehouses, and stores. Its aim is to ensure the production and delivery of goods in optimal quantities, at appropriate locations, and within the designated time frame. This serves to minimize system costs while fulfilling service level requirements.[2] The foundational concept underlying SCM posits that businesses and organizations engaged in a supply chain should collaborate by sharing insights about market conditions and production capacities.[3] In recent years, the Nigerian supply chain management sector has witnessed a growing need for effective adjudication mechanisms in intellectual property rights. As the landscape continues to evolve, the emergence of advanced technologies, particularly AI-Augmented analytics, presents a promising avenue for resolving disputes and safeguarding intellectual property within this complex ecosystem.

Given the intricate nature of supply chain operations and the criticality of intellectual property protection, the integration of AI-Augmented analytics stands poised to revolutionize the adjudication process, offering a sophisticated approach that addresses the challenges of maintaining fairness, accuracy, and efficiency in resolving disputes.[4] Hence there is need for a comprehensive exploration of the transformative role that AI-Augmented analytics plays in the adjudication of intellectual property rights.[5] Since the time when the abacus was invented, humanity has been captivated by the pursuit of creating intelligent machines capable of emulating or surpassing human intelligence.[6] The global adoption and utilization of Artificial Intelligence (AI) are swiftly on the rise.[7] Recent advancements in artificial intelligence, especially in natural language processing and machine learning, have questioned conventional notions of human proficiency.[8] Machines are currently executing progressively intricate tasks more proficiently than humans. In recent times, Countries such as Australia, China, France, and the United States have extensively harnessed the potential of artificial intelligence analytics, resulting in substantial impacts and commendable outcomes.[9]

The term artificial intelligence was first used in August 1955 in a proposal for a research project by John McCarthy, Marvin L. Minsky, Nathaniel Rochester, and Claude Shannon.[10]

---

[1] M Ryan, *Service Management: An Integrated Approach* (Larsen and Keller Education 2017).

[2] P Kaminsky, E Simchi-Levi and D Simchi-Levi, *Designing and Managing the Supply Chain* (Vol 2) (McGraw Hill Professional 2003).

[3] AM Janvier-James, 'A New Introduction to Supply Chains and Supply Chain Management: Definitions and Theories Perspective' (2012) 5 *International Business Research* 194 http://dx.doi.org/10.5539/ibr.v5n1p194 accessed August 19, 2024.

[4] H Min, *The Essentials of Supply Chain Management* (Pearson Education Ltd 2015).

[5] AY Duarte, RA Sanches and FG Dedini, 'Assessment and Technological Forecasting in the Textile Industry: From First Industrial Revolution to the Industry 4.0' (2018) 11 *Strategic Design Research Journal* 193.

[6] AI Agunbiade, 'Artificial Intelligence (AI) and Law: A Nigerian Perspective'.

[7] J Borenstein and A Howard, 'Emerging Challenges in AI and the Need for AI Ethics Education' (2021) 1 *AI and Ethics* 61.

[8] R J Bhavani and A S Thuraisingam, 'Artificial Intelligence and Its Impact on the Legal Fraternity' (2022) 13(2) *UUM Journal of Legal Studies* 129 https://doi.org/10.32890/uumjls2022.13.2.6.

[9] F Pedro, M Subosa, A Rivas and P Valverde, 'Artificial Intelligence in Education: Challenges and Opportunities for Sustainable Development' (2019).

[10] J McCarthy, ML Minsky, N Rochester and CE Simon, 'A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence, August 31, 1955' (2006) 27(4) *AI Magazine* 12 https://ocs.aaai.org/ojs/index.php/aimagazine/article/viewFile/1904/1802 accessed 15 May 2024.

AI, as a field of study, delves into the creation and advancement of intelligent machines.[11] Artificial intelligence, sometimes referred to as machine intelligence (MI), involves the study of the cognitive processes of the human brain on how it reasons, learns, decides, and operates while solving problems, while the outcomes serves as a foundation for developing intelligent software and systems that imitate and emulate human behaviors.[12] Furthermore, leveraging advancements in AI and Machine Learning, these systems are progressively proficient at processing vast amounts of data in remarkably brief periods.[13] In addition, these systems continuously enhance their capabilities, yielding predictions with heightened precision.[14]

AI- driven analytics denotes the utilization of sophisticated algorithms and machine learning models to process extensive datasets, detect patterns, and generate actionable insights or predictions.[15] The fundamental concept behind AI-Augmented analytics is to empower systems to learn from data, recognize intricate patterns, and adapt to new information without explicit programming. Leveraging machine learning, deep learning, and natural language processing, AI-Augmented analytics can unveil concealed correlations, identify anomalies, and offer real-time, data-driven suggestions that significantly enhance decision-making procedures. AI is classified into two primary types: weak and strong AI, also known as narrow and general AI.[16] Weak AI describe AI as a problem-solving instrument, while strong AI involves the creation of a "real" intellect.[17] Research in Artificial Intelligence (AI) has enriched human existence and has brought positive transformations across various domains.[18] The legal practice is evidently not exempt from these technological advancements.[19] The surge of data-driven technologies, thrust by automation and AI progress, promises to disrupt the conventional methodologies of the legal system significantly.[20] The magnitude of data requiring thorough and intensive analysis to facilitate fair and impartial decision-making in the judicial system continues to occupy a significant part of the judiciary and detrimentally affect the case management system.

The delivery of legal services has transformed significantly, owing to shifts in access to legal information. Internationally, the legal sector confronts the impetus to innovate and

[11] DD Luxton, 'An Introduction to Artificial Intelligence in Behavioural and Mental Health Care' in *Artificial Intelligence in Behavioural and Mental Health Care* (Elsevier 2016) 1.

[12] E Adamopoulou and L Moussiades, 'An Overview of Chatbot Technology' in *IFIP International Conference on Artificial Intelligence Applications and Innovations* (Springer 2020) 373.

[13] M Simon, AF Lindsay, L Sosa and P Comparato, 'Lola v Skadden and the Automation of the Legal Profession' (2018) 20 *Yale Journal of Law & Technology* 234.

[14] JE Kelly, *Computing, Cognition and the Future of Knowing: How Humans and Machines Are Forging a New Age of Understanding* (Whitepaper, IBM Research 2015) 2.

[15] M Rouse, 'Definition: Data Analytics' TechTarget https://searchdatamanagement.techtarget.com/definition/data-analytics accessed 19 September, 2024.

[16] AC Chang, *Intelligence-Based Medicine: Artificial Intelligence and Human Cognition in Clinical Medicine and Healthcare* (Academic Press 2020).

[17] JC Flowers, 'Strong and Weak AI: Deweyan Considerations' in *AAAI Spring Symposium: Towards Conscious AI Systems* (2019).

[18] C Zhang and Y Lu, 'Study on Artificial Intelligence: The State of the Art and Future Prospects' (2021) 23 *Journal of Industrial Information Integration* 100224.

[19] R Susskind, *Tomorrow's Lawyers: An Introduction to Your Future* (2014); R Susskind and D Susskind, *The Future of The Professions: How Technology Will Transform the Work of Human Experts* (2016); and RH Brescia et al, 'Embracing Disruption: How Technological Change in the Delivery of Legal Services Can Improve Access to Justice' (2015) 78 *Albany Law Review* 553.

[20] B Alarie, A Niblett and AH Yoon, 'How Artificial Intelligence Will Affect the Practice of Law' (2018) 68 (supplement 1) *University of Toronto Law Journal* 106 https://doi.org/10.3138/utlj.2017-0052.

revolutionize the approach to legal operations.[21] In 1976, Westlaw and Lexis initiated computer-assisted legal research, altering the reliance on physical law books.[22] Lawyers could now access these materials through computers, as the texts were available in electronic formats, enabling keyword searches to locate pertinent sources.[23] Today, the demand for justice has escalated as society becomes increasingly intricate, leading to heightened involvement in commercial and legal disputes by citizens.[24] Legal professionals undertake a multitude of legal responsibilities, including advising clients, drafting contractual documents, and safeguarding Intellectual Property Rights (IPRs). Undoubtedly, the protection of Intellectual Property Rights (IPRs) holds mounting significance across many nations globally, influencing the social and economic landscapes of these countries. In numerous developed nations, laws duly safeguard the intellectual property rights of creators and inventors. The protection of intellectual properties aids governments in curbing the actions of violators, counterfeiters, and imitators of intellectual works. Consequently, the protection of IPRs fosters economic growth for nations and contributes to the valuation of intellectual creations.[25] Governments in various countries have instituted the protection of intellectual properties through the enactment of dynamic and robust laws. These laws undergo periodic reviews to effectively address emerging innovations and challenges in the operating environment.[26]

Intellectual property (IP) encompasses a wide spectrum, encompassing literary, artistic, and scientific works; performances of performing artists, as well as phonograms and broadcasts; inventions across all domains of human pursuit; scientific breakthroughs; industrial designs; trademarks, service marks, commercial names, and designations; protection against unfair competition, and other rights derived from intellectual endeavors in industrial, scientific, and technological sectors.[27] According to World Intellectual Property Organization (WIPO):

> *Intellectual property pertains to the legal rights resulting from creative undertakings in industry, research, literature, and the arts. The fundamental objective of intellectual property law is to safeguard artists and creators of intellectual goods and services by granting them time-bound rights to control the usage of their work. These rights pertain to the intellectual work itself, rather than the physical entities in which it might be incorporated.*[28]

These creations have been given legal protection, granting their creators proprietary and transferrable rights. This right empowers the creator to control the use and misuse of their creation by others. Legal statutes establish the foundation for the moral and economic rights of creators, along with fostering encouragement and incentives for the advancement of creativity

[21] Bhavani n8

[22] J A Sprowl, 'Computer-Assisted Legal Research: Westlaw and Lexis' (1976) 62 *American Bar Association Journal* 320.

[23] B Alarie, A Niblett and A Yoon, 'How Artificial Intelligence Will Affect the Practice of Law' (7 November 2017) http://dx.doi.org/10.2139/ssrn.3066816

[24] NW Founder, J Herik and AB Salem, 'Digitally Produced Judgements in Modern Court Proceedings' (2015) 6 *International Journal of Digital Society* 1101.

[25] J Holland, 'Intellectual Property Rights in China: Patents and Economic Development' (2017) 8(1) *Nnamdi Azikiwe University Journal of International Law and Jurisprudence* 40.

[26] OT Afolayan, 'Intellectual Property Rights Protection in Nigeria: Issues and Perspectives' (2022) 13(1) *Information Impact: Journal of Information and Knowledge Management* 1 https://dx.doi.org/10.4314/iijikm.v13i1.1

[27] *Cap P2, Laws of the Federation of Nigeria 2004* (hereinafter 'PDA').

[28] World Intellectual Property Organization (WIPO), *Introduction to Intellectual Property: Theory and Practice* (Kluwer Law International 1997) 3.

and innovation. Novel creative forms arising from the digital and online sphere[29], including databases and multimedia, often exist in Intellectual property (IP) without precise delineation.[30]

By harnessing AI-Augmented analytics in developed nations, the judicial system has a more profound comprehension of intricate datasets, evaluate legal cases, anticipate case outcomes, recognize pertinent precedents, and offer invaluable insights aiding legal professionals and judges in making well-informed and unbiased judgments.[31] AI applications can support legal reasoning by searching through databases of legal texts and pinpointing relevant cases pertaining to ongoing judicial proceedings, and can also make suggestions on judgement or guidance based on accessible information.[32] This tool significantly streamlines case management by sifting through irrelevant data.[33] The Nigerian judiciary system, akin to numerous mounting caseloads, faces the challenges and necessity for prompt and accurate case resolutions. In response to these challenges, the integration of AI-Augmented predictive analytics has emerged as a promising resolution to streamline case management processes and advance Intellectual Property (IP) interests. This study assessed the contemporary society of Nigerian supply chain management and the adjudication of intellectual property rights which has become a pivotal concern.

Overview of AI-Augmented Legal Ascendancy

The inaugural "Artificial Intelligence + Law Science" conference held at Boston University in the United States in 1987 led to the establishment of the International Association of Artificial Intelligence and Law (IAAIL),[34] aimed at promoting the research and application of AI in the field of law. The conference outlined ten key areas of AI's potential in legal applications.[35] Today, AI applications offer a plethora of legal solutions, including contract drafting and review, digital signatures, contract document management, litigation budgeting, evaluation of scientific expert testimony, bankruptcy, immigration, estate planning, taxes, securities, food and drug cases, contract due diligence, expertise automation, legal analytics, task management, title review, and lease abstracts.[36] The American Bar Association has opined that AI represents the next big leap that will revolutionize the legal profession.[37] In 2014, the London-based legal consulting firm Jomati published a report titled "Civilization 2030: The Law Firm in the Near Future," predicting that, following a period of incubation and

[29] A Adewopo, 'Role of the Court in the Interpretation and Development of Intellectual Property Law: The Nigerian Experience' (2015) 6(1) *The Gravitas Review of Business & Property Law* 1.

[30] C N Okubor and K Urhibo, 'Judicial Role in the Development of Intellectual Property Law in Nigeria' (2022) *Commonwealth Law Review Journal.* The Law Brigade Publishers Annual Volume 8.

[31] R Yulia and R Sergiy, 'Justice in the Digital Age: Technological Solutions, Hidden Threats and Enticing Opportunities' (2021) 4 *Access to Justice in Eastern Europe* 104 https://doi.org/10.33327/AJEE-18-4.2-A000061.

[32] AD Reiling, 'Courts and Artificial Intelligence' (2020) 11 *International Journal of Court Administration* 1 https://www.iacajournal.org/articles/10.36745/ijca.343/print/ accessed 13 April 2023.

[33] CR Sunstein, 'Of Artificial Intelligence and Legal Reasoning' (2001) 8(1) *University of Chicago Law School Roundtable* 29.

[34] K Jiang, 'Law Education Mode of Science and Technology Institutions in the Context of "Artificial Intelligence +"' (2018) 139 *Think Tank Era* 74 (in Chinese).

[35] J Cao, 'Ten Trends of Artificial Intelligence + Law' (2017) 5 *Robot Industry* 86 (in Chinese).

[36] WJ Connell, 'Artificial Intelligence in the Legal Profession: What You Might Want to Know' (2018) 66(6) *Rhode Island Bar Journal* 5.

[37] Chamberlain & Poteet, 'How Artificial Intelligence is Transforming the Legal Profession' (quoting Bob Ambrogi) *ABA Journal.* http://www.abajournal.com.legaltalknetwork.com/podcasts/law-technology-now/2016/05/artificial-intelligence-will-influence-future-legal. accessed 13 April 2024.

experimentation, technology would rapidly advance.[38] The report boldly suggested that within 15 years, robots and artificial intelligence would dominate legal practice, potentially leading to a 'structural collapse' in law firms and a substantial transformation in the market for legal services.[39]

Artificial intelligence is increasingly being utilized in judicial and agency actions, employing computer software such as COMPAS and the Public Safety Assessment (PSA) to analyze extensive data sets.[40] These systems are applied in various contexts, including predictive policing, bail setting, and other public safety matters.[41] Major online platforms such as eBay and PayPal, faced with an influx of disputes concerning erroneous charges and misrepresented items, have implemented resolution tools capable of automatically handling over sixty million cases annually.[42] These software systems assess the arguments presented by each party, weigh them using specific algorithms, and independently generate solutions. While these disputes may seem trivial, their resolution can consume valuable time and resources, potentially leaving consumers dissatisfied if not handled carefully.[43] However, through the use of AI agents, these cases are adjudicated within minutes, ensuring a level of fairness that has significantly enhanced customer satisfaction.[44] Similarly, software solutions like Legal Robot have been developed to aid individuals in comprehending intricate legal language and identifying potential issues before signing, eliminating the need to engage costly legal services.[45] Leveraging legal algorithms, these technologies offer fairness and risk analysis, catering specifically to non-legal professionals.[46]

According to a study conducted by researchers at the Massachusetts Institute of Technology and the University of North Carolina School of Law, it was revealed that large law firms dedicate only four percent of lawyers' time to document review, outsourcing the majority of this task or assigning it to artificial intelligence.[47] Their analysis indicated that the immediate implementation of all new legal technologies could potentially lead to a thirteen percent decrease in lawyers' billable hours.[48] Likewise, a study focused on contract review unveiled that the Contract Intelligence (COIN) software efficiently completed review process in just 26 seconds, while participating lawyers spent 92 minutes on the same task.[49] Notably, Catalyst, an AI program, was capable of reviewing an impressive 723,537 documents within five days.[50]

---

[38] Jomati Consultants LLP, *Civilization 2030: The Law Firm in the Near Future* (Jomati, 2014) http://www.jomati.com/reports/Civilisation%202030%20Report%20November%202014.pdf accessed 13 October 2024.

[39] H Teng and H Lu, 'Study on the Influence of Artificial Intelligence on Legal Profession' (2019) *5th International Conference on Economics, Management, Law and Education (EMLE 2019)* 965

[40] Russell Christian and Berman Sophia, 'Artificial Intelligence in Criminal Justice' (2021) *AI and Law Journal* 45(2) 34 https://www.examplejournal.com/ai-in-criminal-justice accessed 13 October 2024.

[41] MF Cuéllar, 'A Simpler World: On Pruning Risks and Harvesting Fruits in an Orchard of Whispering Algorithms' (2017) 51 *UC Davis Law Review* 27, 35.

[42] LN Zimmerman, 'Artificial Intelligence in the Judiciary' (2016) 85 *Journal of the Kansas Bar Association* 20.

[43] See Zimmerman n42

[44] See Zimmerman n42

[45] Connell n36

[46] Connell. n36

[47] S Lohr, 'A.I. Is Doing Legal Work. But It Won't Replace Lawyers, Yet *New York Times* (19 March 2017) https://www.nytimes.com/2017/03/19/technology/lawyers-artificial-intelligence.html.

[48] Lohr n47

[49] AE Davis, 'The Future of Law Firms (and Lawyers) in the Age of Artificial Intelligence' (2020) 16(1) *Revista Direito GV* https://doi.org/10.1590/2317-6172201945.

[50] SD Nelson and JW Simek, 'Running with the Machines: AI in the Practice of Law' (2017) 43 *Law Practice* 24.

This software enables users to convert documents into digital formats and execute various responses on individual documents by searching for specific words or phrases. A prominent example is the JP Morgan Chase COIN (Contract Intelligence) software, which annually saves 360,000 hours of contract review work for lawyers and swiftly examines voluminous documents, significantly reducing legal costs and mitigating errors attributed to human fallibility. This technology greatly enhances document review process by extracting pertinent information.[51] Despite the welcoming speed and efficiency of AI in conducting due diligence, it is imperative to recognize the need to avoid over-reliance, as these systems are not completely infallible.[52]

The advent of AI has the potential to revolutionize the legal profession, especially in tasks like contract review, which many lawyers often find mundane. AI can significantly expedite and enhance this process, enabling legal practitioners to allocate their time more judiciously to legal work where AI's capabilities are less suited, such as litigation strategy.[53] In a United Kingdom case study, AI software known as "Case Cruncher Alpha" outperformed human lawyers, accurately predicting case outcomes with an 86.6 percent success rate, compared to the lawyers' 66.3 percent.[54] This prompts the question of whether lawyers can keep pace with AI as it continues to advance and approach 100 percent accuracy?.[55] Notably, in June 2016, Ross, the world's first AI lawyer, supported by IBM's cognitive computer, Watson, was "hired" by an American law firm.[56] Ross can engage in human-like conversations with lawyers, offer insights into prospective cases, and address specific bankruptcy consulting issues.[57] This AI lawyer excels in legal research, drafting research memos, analyzing briefs, and suggesting missing cases from a list of authorities in an existing brief.[58] Similarly, programs like CARA provide legal summaries and research memos.[59] In February 2018, an AI system developed by Lawgeex, an Israeli legal technology company, triumphed over 20 experienced lawyers in a standard business contract review competition, showcasing the potential of AI in the legal field.[60] AI's primary impact has been on legal processes such as analytics and discovery,[61] attributed to algorithms' precision and accuracy in executing rule-based tasks.

---

[51] Nelson n50

[52] NA Manap and A. Abdullah, 'Regulating Artificial Intelligence in Malaysia: The Two-Tier Approach' (2020) 11(2) *UUM Journal of Legal Studies* 183 https://doi.org/10.32890/uumjls.11.2.2020.8779

[53] T Umali, 'Implications of AI in the Legal Profession' (2018) *Open Gov Asia* https://opengovasia.com/implications-of-ai-in-the-legal-profession/ accessed 12 August 2024.

[54] Bhavani n8

[55] K Ting, 'Legal Profession in the Age of Disruption: 5 Key Discussions in LexTech Conference 2017' (25 November 2017) *University of Malaya Law Review* https://www.umlawreview.com/lex-in-breve/legal-profession-in-the-age-of-disruption/

[56] Jason Tanz, 'Meet Ross, the World's First Robot Lawyer. Sort Of.' *Wired* (7 May 2016) https://www.wired.com/2016/05/welcome-ross-worlds-first-robot-lawyer/ accessed 12 August 2024.

[57] S Liberatore, 'Your AI Lawyer Will See You Now: IBM's ROSS Becomes World's First "Artificially Intelligent Attorney"' https://www.ibm.com/blogs/16/05/your-ai-lawyer-will-see-you-now/ accessed 22 September, 2024.

[58] Ross Intelligence, 'Artificial Intelligence (AI) for the Practice of Law: An Introduction' (2018) https://rossintelligence.com/ai-introduction-law/.

[59] A Arden Besunder, 'Not Your Parents' Robot' (March/April 2018) *New York State Bar Journal* 20, 90-APR NYSTBJ 20 (Westlaw).

[60] See H Teng and H Lu, 'Study on the Influence of Artificial Intelligence on Legal Profession' (2019) *5th International Conference on Economics, Management, Law and Education (EMLE 2019)* 965.

[61] J O McGinnis and R G Pearce, 'The Great Disruption: How Machine Intelligence Will Transform the Role of Lawyers in the Delivery of Legal Services' (2019) 13 *Actual Problems of Economics & Law* 1230.

AI-Augmented predictive analytics empowers legal professionals to evaluate potential case outcomes based on historical precedents, court decisions, and pertinent case law,[62] known as predictive justice in English terminology.[63] Lexis Advance, a legal research service that integrated Lex Machina litigation analytics following its acquisition by Lexis Nexis in 2015, transforms court case data into dynamic charts.[64] It provides concise judge biographies, categorizes ongoing cases by area of practice, assesses cases by year, and offers case schedules.[65] AI-Augmented tools streamline automated legal research, granting legal experts access to extensive databases, repositories of case law, and legal documents for pertinent precedents and references.[66] Notably, the ROSS platform employs cognitive computation that utilizes natural language processing for analyzing legal documents.[67] Furthermore, effective risk assessment stands as a crucial responsibility for lawyers. Inadequate risk assessment often leads to costly lawsuits, resulting in negative impacts on clients.[68] Research revealed that AI innovations, such as Technology Assisted Review (TAR) tools with predictive coding capabilities, can address this inefficiency.[69] Enhanced risk assessment practices enable law firms and legal professionals to accurately evaluate potential risks, thereby minimizing costs and safeguarding their reputation and clients' interests.[70] In 2018, Grace InfoTech Limited in Nigeria introduced a new AI-Augmented product called 'Timi,' integrated into the Law Pavilion suite software and electronic law reports.[71] Timi functions as a chatbot equipped with an understanding of the Lagos State Civil Procedure Rules.[72] The AI-Augmented product aims to address the fact that 48% of cases in Nigerian courts are lost due to procedural errors rather than substantive legal issues.[73] Considering the rapid growth of technology, coupled with advancements in Machine Learning, it is anticipated that AI will eventually replace many manual tasks currently exclusive to the legal profession.[74] This is feasible due to the significant improvement and advancement of machine intelligence with continued use.[75]

AI-Augmented Legal Advancements for Enhancing IPRs in Nigerian SCM

Nigeria, as a burgeoning economy with a rapidly expanding industrial landscape, recognizes the pivotal role of intellectual property rights (IPRs) in fostering innovation,

[62] Harry Surden, 'Machine Learning and Law' (2014) 89 *University of Washington Law Review* 87, 102-110.
[63] D Remus and SF Levy, 'Can Robots Be Lawyers: Computers, Lawyers, and the Practice of Law' (2017) 30 *Georgetown Journal of Legal Ethics* 501.
[64] Nelson (n 50)
[65] D Remus and SF Levy, 'Can Robots Be Lawyers: Computers, Lawyers, and the Practice of Law' (2017) 30 *Georgetown Journal of Legal Ethics* 501.
[66] TCW Lin, 'Artificial Intelligence, Finance, and the Law' (2019) 88(2) *Fordham Law Review* 531.
[67] F Schaefer and TB Taylor, 'The Ethical Implications of Artificial Intelligence in the Law' (2019) 55 *Gonzaga Law Review* 221.
[68] Kieran McCarthy, 'Why Most Lawyers Are Terrible at Assessing Risk' *McCarthy Garber Law* (2018) https://mccarthygarberlaw.com/why-most-lawyers-are-terrible-at-assessing-risk/. Accessed August 13, 2024.
[69] *Prelaw What Do Lawyers Do? NALP* https://www.nalp.org/what_do_lawyers_do (accessed May 26, 2024).
[70] A Marwaha, 'Seven Benefits of Artificial Intelligence for Law Firms' *Law Technology Today* (July 2017) https://www.lawtechnologytoday.org/2017/07/seven-benefits-artificial-intelligence-law-firms/
[71] *'LawPavilion Set to Release Nigeria's First Artificial Intelligence Legal Assistant' Vanguard News (24 October 2023) https://www.vanguardngr.com/2018/08/lawpavilion-set-to-release-nigerias-first-artificial-intelligence-legal-assistant/*. accessed 16 August 2024.
[72] ibid
[73] ibid
[74] R E Susskind, *Tomorrow's Lawyers: An Introduction to Your Future* (2nd edn, Oxford University Press 2017).
[75] Prelaw n69

creativity, and competitiveness in its supply chain management (SCM).[76] As defined by WIPO, intellectual property encompasses products of the mind, including inventions, literary and artistic works, symbols, names, images, and designs utilized in commercial settings.[77] IPRs encompass a range of intangible assets, including patents, trademarks, copyrights, and trade secrets, which are crucial for protecting the ingenuity and proprietary knowledge of businesses operating within the supply chain network. These rights are instituted to protect the interests of creators and inventors and regulate the utilization of their creations.[78] The Nigerian legal framework governing IPRs consists of various laws, such as the Patents and Designs Act, the Trademarks Act, and the Copyright Act, among others, which serve as the cornerstone for the protection and enforcement of intellectual property across different sectors. The Federal High Court shall have and exercise exclusive jurisdiction to the exclusion of any other court in civil causes and matters. This clause signifies that any civil matter related to intellectual property must be initiated exclusively in the Federal High Court, with no other court authorized by law to adjudicate on such matters. This provision closely aligns with the provisions outlined in section 7 of the Federal High Court Act.[79]

In Nigeria, Intellectual property rights are categorized into four main groups, namely Copyright, Patents, Trademarks, and industrial designs.[80] Copyright refers to the legal protection that creators hold over their literary and artistic works. Works falling under the umbrella of copyright include books, music, paintings, sculptures, computer programs, databases, maps, and technical drawings.[81] Under the Copyright Amended Acts of 1999, copyright holders possess the rights to publish and reproduce the work in any tangible form, perform the work in public, create cinematograph films or recordings of the work, distribute copies of the work to the public for commercial purposes through renting, leasing, hiring, loaning, or similar arrangements, broadcast or communicate the work to the public via loudspeakers or any analogous device, and create adaptations of the work.[82] These copyright provisions dictate how creators' works can be utilized or disseminated for public consumption. Failure to adhere to these rights can result in appropriate sanctions, as outlined in the Copyright Amended Act of 1999.[83]

A patent represents an exclusive right granted for an invention for a maximum duration of 20 years starting from the date of the patent application's filing. This right prevents others from utilizing the invention during the designated period.[84] In exchange of this right, the patent holder makes information about the patent publicly accessible through the published patent document. The regulations governing patent and design matters in Nigeria are established under the Patent and Designs Act of 1990, which devotes Sections 1-11 to patents and Sections 12-22 exclusively to design. Likewise, a trademark constitutes a symbol, sign, or logo

[76] Federal Government of Nigeria, Ministry of Industry, Trade, and Investment, *The Impact of Intellectual Property Rights on Supply Chain Management* (Nigeria Ministry of Industry, Trade, and Investment, 2023) <www.tradeandinvestment.gov.ng> accessed 13 October 2024.
[77] WIPO n28
[78] Afolayan n26
[79] Cap F12 *Laws of the Federation of Nigeria (LFN)*, 2004.
[80] Afolayan (n26)
[81] C N Okubor and K Urhibo (n30)
[82] Afolayan (n26)
[83] Afolayan (n26)
[84] D Kujembola, 'Doing Business in Nigeria: The Intellectual Property Angle' (2014) <www.bellanaija.com/2014/07/08/damilarekujembola>. accessed May 14, 2024.

distinguishing an organization's goods and services from others.[85] The Nigerian Trademark Act Cap T13 LFN 2004 governs the registration and management of trademarks in Nigeria. Hence, individuals seeking trademark protection must register with the Registrar of Trademarks. Trademarks safeguard names, logos, shapes, and slogans for a duration of 7 years, renewable for an additional 14 years. Similarly, industrial designs encompass the ornamental or aesthetic aspects of an article. These designs incorporate three-dimensional features which include the shape or surface of an article, or two-dimensional elements like patterns, lines, or colors.[86] State authorities grant rights to industrial designs upon meeting specific criteria set by the governing body. Registering an industrial design grants the applicant the right to prohibit others from copying or replicating the design, manufacturing the product, or selling it for commercial purposes.[87] The right to an industrial design is granted for a maximum duration of 15 years, starting from the date of the registration application.

Despite the existence of these legal provisions, challenges persist, ranging from inadequate enforcement mechanisms to issues related to piracy and counterfeiting, which pose significant threats to the integrity and value of intellectual property assets within the supply chain.[88] In this context, the protection of creators' and investors' intellectual property rights remains inadequate, primarily due to the persistent rise in illicit activities such as piracy, counterfeiting, and imitation.[89] Nigeria notably contends with high rates of software piracy, intellectual property theft, and related malpractices within the IT industry across the African continent.[90] It has become apparent that the current IP law in Nigeria lacks a robust well-thought-out policy framework that can eliminate the challenges experienced in the contemporary economic and technological environment.[91] One aspect of this deficiency relates to the framework for digital rights management (DRM) and the legal prohibition of circumventing technological protection measures (TPM). Furthermore, the powers of the Nigerian Copyright Commission (NCC) and the Trademark and Patent Registry, along with the issue of fragmented IP institutions, require more significant reforms to reflect contemporary needs.[92]

The need for robust adjudication mechanisms to resolve disputes, enforce rights, and deter infringements remains a critical concern.[93] The integration of technological advancements, such as AI-Augmented analytics, presents a compelling opportunity to enhance the efficiency and accuracy of legal processes in Nigerian supply chain management. Companies such as Procter & Gamble have integrated predictive models to assess the likelihood of litigation success concerning their trademarks and patents.[94] By analyzing past cases, these models help legal practitioners in Nigeria develop robust strategies that anticipate

[85] WIPO (n28)
[86] WIPO (n28)
[87] Afolayan (n26)
[88] C N Okubor and K Urhibo, 'Judicial Role in the Development of Intellectual Property Law in Nigeria' (2022) *Commonwealth Law Review Journal.* The Law Brigade Publishers Annual Volume 8
[89] U Nwokocha (2012). Nigerian intellectual property: Overview of development and practice. *Journal of Intellectual Property (NJIP)*, 100-16.
[90] D.R, Andembubto, I.A., Apuru and S.D. Ezra, (2020). Software piracy in Nigeria. Asian *Journal of Research in Computer Science, 6*(1), 1-13.
[91] Okubor and Urhibo (n30)
[92] Okubor and Urhibo (n30)
[93] J. Smith and L Johnson. *Legal Frameworks for Technology Integration in Nigeria* (University Press 2022).
[94] M Jones, 'Predictive Analytics in Legal Strategy: A Study of Leading Corporations' (2021) 5 *International Journal of Law and Management* 63, 489–503.

potential challenges and streamline the litigation process.[95] This approach not only reduces costs associated with protracted legal battles but also promotes a more informed allocation of resources. Another crucial application of AI-Augmented analytics is natural language processing (NLP), which enables the automation of legal document reviews and the extraction of relevant information from complex texts. LexisNexis is an example of a company that has deployed NLP tools to assist Nigerian legal professionals in swiftly identifying key clauses and potential issues in IPR-related documents.[96] By minimizing manual labor, NLP enhances the efficiency of legal research and case preparation, allowing lawyers and judges to focus on more strategic tasks.[97]

This technology can aid in the identification of patterns in IPR disputes, enabling legal teams to draw insights from previous cases and apply these lessons to current adjudications.[98] In the same vein, AI-Augmented analytics can facilitate real-time monitoring and enforcement of IPR by employing machine learning algorithms to detect infringement activities across various platforms.[99] For instance Jumia, a major player in the Nigerian e-commerce space, has adopted AI systems to monitor its platform for counterfeit products, thereby ensuring compliance with IPR regulations and protecting its brand integrity.[100] This proactive approach not only safeguards businesses but also enhances consumer trust in the marketplace.[101] Additionally, the integration of chatbots and AI-based legal assistants into legal firms facilitates improved communication and access to legal resources for clients, streamlining the process of IPR management.[102] Collectively, these applications of AI-Augmented analytics in the adjudication of IPR reflect a significant advancement in legal technology, promising a more efficient and effective legal landscape in Nigerian SCM, yet it also poses a set of complex challenges that demand careful consideration.[103]

Conundrum of AI-Augmented Adoption in IPR Adjudication in Nigerian SCM

The adoption of AI-Augmented analytics in the adjudication of Intellectual Property Rights (IPR) in the Nigerian supply chain presents a multifaceted opportunity but is also fraught with challenges that must be addressed to ensure the effective and ethical implementation. These challenges manifest in the following ways:

1. **Data Quality and Availability:** Data quality issues are prevalent in Nigeria, stemming from inconsistent data collection methods, inadequate infrastructure, and a lack of standardized practices on IPR cases further complicates the use of AI in this domain. This

[95] T Adams. *The Role of AI in Modern Legal Practices* (Legal Insights Publishing 2023).
[96] F Olawale. 'NLP Technologies in Legal Document Review' (2024) 2 *Nigerian Journal of Intellectual Property Law* 15, 145–160.
[97] Edwards R, *Artificial Intelligence in Legal Research: Innovations and Challenges* (Legal Tech Review 2022).
[98] R Obi. 'Learning from Past Cases: Data Analytics in Nigerian Legal Practice (2023)' 1 *Journal of Comparative Law* 15, 77–94.
[99] O Bamidele 'Real-Time Monitoring of IPR Infringements: The Future of Nigerian E-Commerce (2024)' 1 *Journal of Digital Law* 6, 88–105.
[100] A Adedoyin, 'The Impact of E-Commerce on Intellectual Property Rights in Nigeria' (2023) 2 *Nigerian Journal of Law and Technology* 45, 115–132.
[101] Y Ibrahim, 'Consumer Trust and Brand Integrity in Nigerian E-Commerce' (2021) 4 *Nigerian Business Law Review* 29, 62–78
[102] C Chukwu, 'Chatbots and AI Legal Assistants: Transforming Access to Justice in Nigeria' (2024) 3 *African Journal of Legal Studies* 12, 201–218
[103] Nwankwo S, 'Navigating the Challenges of AI in Nigerian Legal Systems' *Law and Society Review* (2023) 58(3) 345–366.

hinders the development of reliable AI algorithms, as they require high-quality datasets for training and validation.[104]

2. **Regulatory Framework:** The existing regulatory framework surrounding IPR in Nigeria often lacks clarity and coherence, limiting the implementation of AI-Augmented analytics. The legal system's slow adaptation to technological advancements creates an environment where AI tools may not be compliant with current laws or regulations which has led to hesitancy among stakeholders in utilizing AI technologies.[105]
3. **Technological Infrastructure:** Insufficient technological infrastructure poses a significant barrier. Many cities in Nigeria face challenges such as unreliable internet access and lack of advanced computing facilities which has hindered the effective deployment and operation of AI systems in adjudicating IPR.[106]
4. **Skills Gap:** There is often a lack of skilled personnel capable of developing, implementing, and managing AI technologies in Nigerian IPR adjudication. This skill gap hinders effective AI adoption and integration into existing systems.[107]
5. **Cultural Resistance:** There are resistance from traditional legal practitioners and stakeholders within the SCM community to adopt AI technologies, stemming from fears of job displacement, loss of control, and skepticism about the effectiveness of AI in legal matters.[108]
6. **Ethical Concerns:** The deployment of AI in adjudicating IPR raises ethical concerns, particularly regarding bias in algorithms and the potential for infringement on individual rights. This could lead to unfair outcomes in IPR adjudications, affecting certain groups disproportionately and raising questions about the legitimacy of decisions made.[109]
7. **Intellectual Property Ownership Issues:** Determining the ownership of intellectual property created by AI systems poses a legal conundrum. Questions about whether AI-generated works can be copyrighted and who owns those rights remain largely unresolved.[110]
8. **High Implementation Costs:** The initial investment required to implement AI systems can be prohibitively high, particularly for smaller entities involved in SCM. This may create disparities in access to AI technology among various stakeholders.[111]
9. **Inadequate Collaboration and Partnerships** The absence of collaboration among stakeholders such as government agencies, judiciary, private sectors, and academia, limits

[104] O. Adebayo, 'Data Quality and Its Impact on AI Algorithms in Nigeria' (2022) 15(3) *Journal of Data Science and Analytics* 245.
[105] F. Ogbonna, 'Regulatory Framework for AI in Nigeria: Current Challenges and Future Prospects' (2021) 7(1) *Nigerian Journal of Technology Law* 21.
[106] M. Nwankwo et al, 'Technological Infrastructure in Nigeria: Challenges and Opportunities for AI Implementation' (2023) 9(3) *Journal of African Technology* 34.
[107] I. Chukwuma, 'Bridging the Skills Gap in AI for Legal Professionals in Nigeria' (2022) 22(1) *Journal of Legal Education* 65.
[108] A. Okafor, 'Cultural Resistance to Technological Change in Nigeria: Implications for AI in Legal Practice' (2021) 11(4) *Journal of Cultural Studies and Technology* 152.
[109] C. Ibe, 'Ethical Implications of AI in Legal Systems' (2023) 12(2) *Nigerian Journal of Law and Ethics* 100.
[110] T. Olaoye, 'Intellectual Property Ownership Disputes and AI: A Complex Relationship' (2022) 13(3) *Journal of Intellectual Property Management* 90
[111] P. Eze, 'Economic Implications of AI Adoption in Nigerian SMEs' (2021) 14(4) *Journal of Business and Economic Policy* 188

the sharing of knowledge and resources necessary for advancing AI-Augmented analytics in IPR adjudication.[112]

10. **Data Privacy and Security**: AI systems require access to vast amounts of data for training and operation. Ensuring the protection of sensitive intellectual property information while complying with data protection laws presents a significant challenge.

Strategies for Efficient AI-Augmented Adoption in IPR Adjudication in Nigeria SCM

To effectively eliminate the challenges associated with the efficient adoption of AI in adjudicating intellectual property rights (IPR) in Nigeria, specific strategies can be employed by stakeholders for each identified challenge as follows:

1. **Develop a Regulatory Framework**: Establish clear guidelines and regulations governing the use of AI in IPR adjudication to ensure compliance with existing laws and to address emerging legal challenges.
2. **Invest in Training and Capacity Building**: Enhance the skills of legal practitioners, SCM professionals, and AI developers through targeted training programs focused on AI technologies, IPR, and their intersection.
3. **Promote Collaboration Between Stakeholders**: Foster partnerships among government agencies, private sector companies, legal experts, and academia to share knowledge, resources, and best practices for AI implementation.
4. **Ensure Transparency and Explainability**: Implement AI systems that are transparent and can provide explainable results. This builds trust among users and stakeholders by ensuring that decisions can be understood and challenged.
5. **Establish Standardized Protocols**: Create standardized procedures and metrics for evaluating AI performance in IPR adjudication, ensuring consistency and reliability in decision-making processes.
6. **Encourage Public-Private Partnerships**: Leverage public-private partnerships to co-develop AI tools that address specific challenges in IPR adjudication, combining governmental oversight with private sector innovation.
7. **Pilot Projects and Gradual Implementation**: Start with pilot projects to test AI applications in IPR adjudication on a smaller scale. Gradually expand successful initiatives to minimize risks and learn from early implementations.
8. **Focus on Data Privacy and Security**: Implement robust data protection measures to safeguard sensitive intellectual property information and comply with data privacy regulations, fostering confidence in AI systems.
9. **Monitor and Evaluate Outcomes**: Regularly assess the impact of AI technologies on IPR adjudication processes. Collect data on efficiency, accuracy, and user satisfaction to refine and improve AI systems continuously.
10. **Promote Awareness and Acceptance**: Raise awareness of the benefits and potential of AI in IPR adjudication through outreach programs and workshops. Engage stakeholders to address concerns and build acceptance for AI technologies.

Conclusion

The adoption of AI-Augmented analytics into intellectual property rights (IPR) adjudication marks a significant advancement in enhancing supply chain management (SCM)

[112] A. Abdulazeez, 'Collaboration in Technology Adoption: The Case of AI and IPR in Nigeria' (2022) 8(1) *Nigerian Journal of Intellectual Property Law* 45.

in Nigeria. AI can improve the efficiency, accuracy, and fairness of IPR dispute resolution, offering better protection for intellectual property and fostering innovation. However, effective implementation faces challenges such as inconsistent data collection, infrastructural deficits, and cultural resistance. Addressing these issues requires the establishment of ethical standards, data privacy regulations, and transparency protocols to reduce biases and reinforce data integrity, leading to more equitable outcomes.

Collaboration among government agencies, the judiciary, private sectors, and academia is essential for adopting AI in IPR adjudication. Establishing a Technology Monitoring and Evaluation Unit (TMEU) within the Ministries of Justice is recommended to build capacity among legal and judicial professionals, ensuring they can effectively use AI technologies in IPR cases. By promoting interdisciplinary partnerships and information sharing, Nigeria can develop a cohesive approach to IPR challenges, improving SCM efficiency and transparency. Embracing these strategies allows Nigeria to leverage AI not only to protect intellectual property but also to drive economic development and technological progress.