

ARTICLE

FROM COMMONS TO CODE: HOW AGENTIC ARTIFICIAL INTELLIGENCE IS FORCING A POLYCENTRIC REDESIGN OF IP LAW



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Abstract

The digital economy, expected to reach a worth of US \$ 24 trillion by late 2025, faces an Incentive-Access Paradox of the kind that is an unavoidable juxtaposition of the difficulty intellectual property frameworks have in coping with the rise of Agentic artificial intelligence and the decentralised architectures that support it. Established anthropocentric doctrines of authorship and inventorship conflict with the products of autonomous machines, thereby engendering concerns about a “Tragedy of the Anti-commons” in which fragmented rights and patent thickets hamper the very innovation they seek to protect. Regulatory efforts around the world are increasingly oriented toward systemic risk management and hybrid licensing regimes.

The European Union’s AI Act, which comes into partial effect in August 2025, includes mandates for transparency and copyright compliance for providers of General-Purpose Artificial Intelligence (GPAI). In parallel, the 2025 Directive of the Indian Ministry of Industry and Commerce (DPIIT) expert committee has favored a “mandatory blanket licence” accompanied by statutory remuneration; it has thus effectively sought to balance the disparity in bargaining power between the developer/creator. The judicial frontier has been further identified by US precedent set in 2025, specifically *Bartz v. Anthropic* and *Kadrey v. Meta*. These decisions characterised training of Large Language Models (LLMs) as “spectacularly transformative” and thus fell within the ambit of fair use. However, the rulings set the transformative process of training apart from unlawful data acquisition, which keeps liability for using pirated sources alive. In an attempt to fill the gap in today’s law, sui generis mechanisms, e.g., Ukraine’s 25-year-long-term economic protection regime for non-original computer-generated works, are emerging as viable alternatives to mainstream copyright law.

Developing a resilient digital ecology depends on a polycentric governance structure that addresses the *Productivity J-Curve* and prevents the enclosure of the digital commons, which is essential for providing legal certainty and supporting the US \$6.7 trillion infrastructure investment needed by 2030.

Keywords – Incentive Access Paradox; Agentic Artificial Intelligence; General Purpose Artificial Intelligence; Large Language Models; Productivity J – Curve.

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I. INTRODUCTION: THE US \$24 TRILLION DIGITAL FRONTIER

The global digital economy, which is expected to be valued at some \$24 trillion by the close of 2025, is no longer just the exceptional amount of capital-accumulating, but a paradigm shift in the structural foundations of productivity and ownership, one that is currently accelerating at a tripled pace to the ancient anthropocentric principles of intellectual property (IP) with the new architecture of the decentralized networks and actuarial artificial intelligence (AI). Since time immemorial, intellectual property law has been based on the notion of the recognisable human inventor. Whether it's copyright, where originality is bound to human expression, or patent law, where inventorship must be by a natural person, the law has been skewed towards protecting human-directed creative effort.¹ That said, the emergence of Agentic AI, systems capable of making autonomous decisions, using tools, and executing long-term goals, disrupts this anthropocentrism.² The absence of a clear origin of human provenance puts these systems in the position of creating outputs that lack a proven chain of provenance: ripping through the law such that these tools. This crisis would have to be solved by drastically remodelling the governance. This trend is indicative of a shift toward a Productivity J–Curve whereby preliminary investment in AI and decentralized infrastructure, followed by initial, short-lived performance losses and legal instability as companies and states redesign their organizational and legal processes, will result in the establishment of a robust digital ecology that will add the legal predictability required to complete the US \$6.7 trillion of infrastructure investments needed by 2030.

II. THE MACROECONOMIC ENVIRONMENT: THE US \$24 TRILLION DIGITAL ECONOMY

The acceleration of the digital economy in 2025 is informed by what many observers describe as a second industrial revolution, fuelled by computing power rather than fossil fuels.³ This development is complex, in both the way it has specialised AI deployment, connected the world, and brought to life new sectors of the economy that were previously invisible.

Metric	Projection (2025)
Total Digital Economy Value	US \$24 Trillion ⁴

¹ Anirban Mukherjee & Hannah Hanwen Chang, *Fluid Agency in AI Systems: A Case for Functional Equivalence in Copyright, Patent, and Tort*, arXiv:2601.02633 (Jan. 6, 2026), <https://arxiv.org/pdf/2601.02633> (last visited Jan. 07, 2026)

² Squire Patton Boggs, *The Agentic AI Revolution: Managing Legal Risks*, (Jan. 08, 2026), <https://www.squirepattonboggs.com/insights/publications/the-agentic-ai-revolution-managing-legal-risks/> (last visited Jan. 09, 2026).

³ Jade Cummings, *The AI Data Centre Gold Rush*, Beazley (July 7, 2025), <https://www.beazley.com/en/articles/the-ai-data-centre-gold-rush/> (last visited Jan. 09, 2026).

⁴ *Supra* note 2.

Digital Economy as % of Global GDP	21% ⁵
Growth Rate Relative to Global Economy	3x Faster ⁶
Projected Infrastructure Capex (2030)	US \$6.7 Trillion
Estimated Creative Economy Value	US \$4.4 Trillion
Capability (Disability) Economy Spillover	US \$13 - \$24 Trillion

This economic change does not consist solely of the emergence of big tech companies; rather, it is the “*Neighbourhood Economy*,” an act of actualising social and economic possibilities that traditional finance systems have historically rendered invisible.⁷ For instance, one example of this is the so-called “*Capability Economy*”, or defined by the spending power and creative input of one in four people worldwide living with disabilities, a US \$23 trillion spending power annually.⁸ When added to the growing “*Creative Economy*” (US \$4.4 trillion), the world’s fast-growing digital infrastructure is not evenly distributed. Things like the shift to a Digital Public Infrastructure (DPI) layer, such as digital ID, payments and consent-based data exchange, are perceived in the context of developing countries, such as Liberia, to be the only way to achieve financial inclusion and mobilisation of domestic tax revenue. Still, they face the challenge of governing these digital building blocks and of ensuring compatibility with the traditional physical economic framework of brick-and-mortar.

III. THE INCENTIVE-ACCESS PARADOX AND THE FALL OF ANTHROPOCENTRIC IP

The Incentive-Access Paradox is the central theoretical bottleneck in the current transition towards a code-based economy. At its core, the paradox is that, to achieve their potential and enable the digital economy to realise its potential, AI systems require access to large amounts of high-quality data, much of which is shielded by traditional intellectual property rights.⁹ But access to large quantities

⁵ *Supra* note 3.

⁶ *Supra* note 3.

⁷ Genesis Block, *Newkirklytics: Building the Financial System for the People the Markets Forgot*, Medium (Nov. 4, 2025), <https://genesiskiln.medium.com/newkirklytics-building-the-financial-system-for-the-people-the-markets-forgot-e9f31b57fcb9> (last visited Jan. 10, 2026).

⁸ *Ibid.*

⁹ Nikhilesh Sinha, *Reimagining IP Rights for the Generative AI Era: A Polycentric Governance Approach*, JoIE Blog (Aug. 5, 2025), <https://joie-blog.net/reimagining-ip-rights-for-the-generative-ai-era-a-polycentric-governance-approach> (last visited Jan. 11, 2026).

of high-quality data, often used to capture the attention of such systems, is what creates the phenomenon known as the Incentive-Access Paradox.¹⁰

IV. THE ANTHROPOCENTRIC DOCTRINE COMES UNDER STRAIN

Conventionally, IP doctrines are inherently anthropocentric, and to protect a given work of art, a personal human creative contribution or the creative decisions of a specific individual are required.¹¹ In the European Union, copyright law is based on the principle that, since no human input is involved in a strictly automated process, a derived work cannot qualify as original.¹² Legal precedents such as *Levola Hengelo B.V. v. Smilde Foods B.V.*¹³ support this, emphasising the significance of a creator's conscious decisions in identifying a work as their own. Nevertheless, the advent of Agentic AI systems in 2025 has created a condition of fluid agency, where behaviour is stochastic, dynamic, and adaptive. The system is not merely executing code; it is planning, using tools, and sharing memory to achieve results without a human directive.¹⁴ As one attempts to apply an Agentic AI system to research, write a novel, or develop a new circuit, the bedrock of attribution upon which centuries-old legal doctrine has long rested is irritated into irrelevance.¹⁵

V. THE TRAGEDY OF THE ANTI-COMMONS

The outcome of fragmented ownership, which is now spreading into the digital space, is directly the cause of the "*Tragedy of the Anti-Commons*". In a common-pool tragedy, a common resource is overexploited; in an anti-commons tragedy, the resource is underutilised pointlessly as many proprietors exist who can prevent others from using it, rather than allowing the resource to be used more efficiently, particularly in a cumulative innovation process that can only truly benefit the world when managed by a single entity.¹⁶ The presence of high-tech enterprises in the Chinese economy shows that patent thickets decrease a firm's market value by a large margin, increasing the cost of licensing transactions and the risk of extortion by so-called patent trolls.¹⁷ In areas where technological accumulation is high, this is actually a de facto enclosure of data and technology by monopolies, creating a skewed marketplace where the tradability of domestic services is inhibited, and a huge opportunity cost in terms of unrealised public and social value is generated.

¹⁰ Michael A. Heller, *The Tragedy of the Anticommons: A Concise Introduction and Lexicon*, 76 *Modern L. Rev.* 6 (2013), https://www.researchgate.net/publication/256044036_The_Tragedy_of_the_Anticommons_A_Concise_Introduction_and_Lexicon (last visited Jan. 12, 2026).

¹¹ Sergiy Barbashyn, *Approaches to IP Protection for Works Generated by Artificial Intelligence: European Standards*, AIPPI (Apr. 25, 2025), <https://www.aippi.org/news/approaches-to-ip-protection-for-works-generated-by-artificial-intelligence-european-standards/> (last visited Jan. 12, 2026).

¹² *Ibid.*

¹³ *Levola Hengelo B.V. v. Smilde Foods B.V.*, Case C-310/17, ECLI:EU:C:2018:899 (Ct. Just. Eur. Union Nov. 13, 2018).

¹⁴ *Supra* note 1.

¹⁵ *Supra* note 1.

¹⁶ Dan L. Burk & Mark A. Lemley, *Policy Levers in Patent Law*, 89 *Va. L. Rev.* 1575 (2003), https://www.researchgate.net/publication/4926674_Policy_Levers_in_Patent_Law (last visited Jan. 12, 2026).

¹⁷ Xiaodong Yuan & Fan Hou, *What Factors Affect the Emergence of Patent Thickets: The Evidence from China*, 37 *Technol. Anal. & Strategic Mgmt.* 1129 (2025), https://www.researchgate.net/publication/377585139_What_factors_affect_the_emergence_of_patent_thickets_the_evidence_from_China (last visited Jan. 13, 2026).

VI. AGENTIC AI: AUTONOMY, LIABILITY, AND THE CHIEF QUESTION OFFICER

The decision to cease calling AI law an emerging field and enter the field of concrete enforcement occurred in the year 2025 due to the shift towards systems in which generative AI tools are a thing of the past and Agentic systems are in place to manage internal digital systems, construct supply chains, and even enter into contracts.¹⁸

VII. THE CONDUCTOR ANALOGY AND CONTRACTUAL CAPACITY

The legal risks of Agentic AI can be explored with the help of the analogy of an orchestra: when compared to traditional AI tools, which comprise single musicians, an Agentic AI system is the conductor, which coordinates the actions of several agents and creates an overall sound, as well as provides related maintenance to industrial equipment.¹⁹ Nonetheless, this autonomy raises questions of the scope of agency law and legal capacity.²⁰ Under English law, contracts can be entered into only by natural persons and other legal entities; as part of English common law, AI systems lack legal personality and thus cannot be parties to contracts.²¹ The agency problem and the conditions under which a contract may be created put a strain on the human mind when there is such a lack of predictability in an AI system that no human could have intended or even imagined the result.²²

VIII. THE WORKFORCE EVOLUTION: CHIEF QUESTION OFFICERS

In work by Erik Brynjolfsson and Tom Mitchell, work is analytically decomposed into three stages: asking the right question, execution, and evaluation, all of which are being supplanted by Agentic AI via reinforcement learning and the capability to operate in complex digital spaces more quickly and efficiently than humans.²³ As a result, the value of human work is changing to the complement of execution: judgment and inquiry, and has given rise to the so-called Chief Question Officer (CQO), whose primary career is to be able to have the judgment to know what to inquire of, why it is essential, and how to assess whether the AI has worked.²⁴ This is leading to the emergence of the so-called Chief Question Officer (CQO), whose primary role would be to exercise judgment on what to ask, why it matters, and how to determine whether the AI has succeeded.²⁵

¹⁸ Squire Patton Boggs, *The Agentic AI Revolution: Managing Legal Risks* (Jan. 2026), <https://www.squirepattonboggs.com/insights/publications/the-agentic-ai-revolution-managing-legal-risks/> (last visited Jan. 13, 2026).

¹⁹ *Ibid.*

²⁰ Edward Lanquist & Alexandra Moylan, *2026 AI Legal Forecast: From Innovation to Compliance*, Baker Donelson (Jan. 6, 2026), <https://www.bakerdonelson.com/2026-ai-legal-forecast-from-innovation-to-compliance> (last visited Jan. 14, 2026).

²¹ Chris Holder & Brieanna McDonald, *The Impact of Agentic AI on English Contract Law*, Browne Jacobson (Jan. 13, 2026), <https://www.brownejacobson.com/insights/the-impact-of-agentic-ai-on-english-contract-law> (last visited Jan. 14, 2026).

²² *Ibid.*

²³ Erik Brynjolfsson, *AI Changed Work Forever in 2025*, *Time* (Jan. 2, 2026), <https://time.com/7342494/ai-changed-work-forever/> (last visited Jan. 15, 2026).

²⁴ *Ibid.*

²⁵ *Ibid.*

AI Evolution Stage	Primary Function	Legal/Economic Bottleneck	Human Role
Generative AI	Content Synthesis	Copyright & Fair Use	Prompter / Editor
Agentic AI	Goal Execution	Contractual Capacity & Liability	Chief Question Officer
Polycentric AI	Federated Coordination	Data Sovereignty & Multi-actor Governance	Governance Architect

IX. GLOBAL REGULATORY DIFFERENCES BETWEEN EU, INDIA, AND UKRAINE

The absence of a global framework for AI has led to a disjointed regulatory environment, with three main models emerging in 2025: the risk-based transparency model (EU), the mandatory blanket licensing model (India), and the sui generis protection model (Ukraine).

X. RISK-BASED SYSTEMIC MANAGEMENT BY THE EUROPEAN UNION.

In the most inclusive effort to address systemic risks, the European Union AI Act began implementation in August 2025, with the most risky AI systems, including social-scoring and manipulative systems, prohibited by February 2025.²⁶ Providers of General-Purpose AI (GPAI) have been subject to transparency and copyright-related mandates, requiring them to document their training data and ensure compliance with existing IP laws.

XI. INDIA: DPIIT HYBRID REGIME OF LICENSING

Unlike the transparency of the EU, a revolutionary concept of a third way suggested by the Department for Promotion of Industry and Internal Trade (DPIIT) in its December 2025 working paper is a mandatory blanket license, which ensures that creators lose the right to opt out of AI

²⁶ Law Offices of Salar Atrizadeh, *The Year in AI Law: 2025's Biggest Legal Cases and What They Mean for 2026*, Internet Lawyer Blog (Dec. 29, 2025), <https://www.internetlawyer-blog.com/the-year-in-ai-law-2025s-biggest-legal-cases-and-what-they-mean-for-2026/> (last visited Jan. 15, 2026).

training; in exchange, AI developers are granted a statutory authority to use any published work.²⁷ Critics have claimed that this proposal causes profound constitutional anxieties in India.²⁸ Critics believe that the proposal amounts to a forced expropriation of intellectual property under Article 300A²⁹, a violation of the freedom of trade under Article 19(1)(g)³⁰, and an excess delegation of pricing power to the executive.

XII. UKRAINE: COMPUTER-GENERATED WORKS SUI GENERIS PROTECTION

Ukraine has also made another move by proposing Article 33 of the Law on Copyright and Related Rights that establishes a sui generis legal framework for non-origin computer-generated objects.³¹ Such objects are protected by copyright when the technical functioning of a program causes their creation, with no direct human input.

Duration: The protection lasts for 25 years from the year of generation.³²

Ownership: The rights are given to the individual who has the exclusive or non-exclusive rights to the computer program used.³³

Moral Rights: No, there is no moral right (e.g. the right to be named author) since the work does not possess human personality.

Criteria: The object must be new and differ from other similar objects generated by automation.³⁴

The regime is expected to fill the gap in traditional copyright law by recognising the market opportunity of AI-generated outputs and offering a minimum level of protection, thereby attracting investment and leaving the works in the public domain after a shorter period than the existing human copyright (70 years).³⁵

XIII. JUDICIAL FRONTIER: BARTZ V. ANTHROPIC AND KADREY V. META

Major court cases in the United States in 2025 also began to draw so-called real lines in the sand regarding

²⁷ Mark Williams, *The Great Reversal: How India's AI Leap Will Transform Global Publishing*, The New Publishing Standard (Dec. 13, 2025), <https://thenewpublishingstandard.com/2025/12/13/india-ai-licensing-publishing-transformation-2/> (last visited Jan. 15, 2026).

²⁸ ABC Live Research Desk, *Explained: The Constitutional Risks in DPIIT's AI Copyright Plan*, ABC Live (Dec. 9, 2025), <https://abclive.in/2025/12/09/dpiit-ai-copyright-plan/> (last visited Jan. 16, 2026).

²⁹ Constitution of India (Government of India, Ministry of Law & Justice, Legislative Department 2020), https://www.indiacode.nic.in/bitstream/123456789/16124/1/the_constitution_of_india.pdf (last visited Jan. 16, 2026).

³⁰ *Ibid.*

³¹ *Supra* note 8.

³² *Ibid.*

³³ Nicholas B. Creel, *What Business Lawyers Can Learn from the First AI Copyright Fair Use Rulings*, *Bus. Law Today* (Am. Bar Ass'n Sept. 30, 2025), https://www.americanbar.org/groups/business_law/resources/business-law-today/2025-september/ai-copyright-fair-use-rulings-business-lawyers/ (last visited Jan. 16, 2026).

³⁴ Sergiy Barbashyn, *Sui Generis: How AI-Generated Works Are Protected in Ukraine and Beyond*, AIPPI (June 20, 2025), <https://www.aippi.org/news/sui-generis-how-ai-generated-works-are-protected-in-ukraine-and-beyond/> (last visited Jan. 17, 2026).

³⁵ *Supra* note 8.

AI training.³⁶ *Bartz v. Anthropic* and *Kadrey v. Meta* are critical in describing the training of Large Language Models (LLMs) as being spectacularly transformative.

XIV. SPECTACULARLY TRANSFORMATIVE FAIR USE

In *Bartz v. Anthropic*, Judge William Alsup, in his summary judgment ruling, found that the use of copyrighted books to train AI models is fair because it does not aim to reproduce the works as authors read them. Still, it uses them as data to train the model to generate new texts.³⁷ The court stated that copying the books to train its models is fundamentally different, since the authors do not intend their books to be read but instead to be used as data to train their models to generate new text. But there was a crucial ruling on the acquisition of the training data: although the training itself was considered a fair use, the court determined that storing pirated works downloaded by Anthropic from so-called shadow libraries, such as LibGen, was not transformative.³⁸ Judge Alsup himself admitted that he was not convinced that a subsequent fair use (training) could justify the initial act of piracy.³⁹

XV. THE COMPETITION THEORY IN THE MARKET

In *Kadrey v. Meta*, Judge Vince Chhabria, who ruled on the case, also found that AI training for content generation was transformative. Still, that transformativeness was not enough to prove infringement on its own, nor was there a requirement to be a direct, verbatim replacement of original works in the same market, e.g., a romance novel or market research.⁴⁰

Decision Feature	Bartz v. Anthropic	Kadrey v. Meta
Core Fair Use Finding	Training is “quintessentially transformative”	Training is “highly transformative”
Role of Sourcing	Piracy is a “litigation vulnerability”	Sourcing is irrelevant if training is transformative

³⁶ *Supra* note 23.

³⁷ *Bartz v. Anthropic PBC*, No. 24-cv-05417 (N.D. Cal. June 23, 2025) (summary judgment ruling on fair use), discussed in *Landmark Ruling on AI Copyright: Fair Use vs. Infringement in Bartz v. Anthropic*, AFS Law (June 30, 2025), <https://www.afslaw.com/perspectives/alerts/landmark-ruling-ai-copyright-fair-use-vs-infringement-bartz-v-anthropic> (last visited Jan. 17, 2026).

³⁸ Megan K. Bannigan & et al., *Anthropic and Meta Decisions on Fair Use*, Debevoise & Plimpton LLP (June 26, 2025), <https://www.debevoise.com/insights/publications/2025/06/anthropic-and-meta-decisions-on-fair-use> (last visited Jan. 17, 2026).

³⁹ Authors Guild, *Bartz v. Anthropic Settlement: What Authors Need to Know*, Authors Guild (Sept. 5, 2025), <https://authorsguild.org/advocacy/artificial-intelligence/what-authors-need-to-know-about-the-anthropic-settlement/> (last visited Jan. 17, 2026).

⁴⁰ *Supra* note 30.

Evidence Required	None for summary judgment	“Credible, data-driven evidence” of market harm
Market Substitution	Focus on verbatim regurgitation	Focus on “market competition” and dilution

The overlap between these cases implies that, though the process of teaching machines is becoming more and more fair use-safe, the unauthorised receipt of data is still an absolute liability, and that organisations should now catalogue all their uses of shadow AI, and revise vendor contracts to push liability in case of copyright violations onto their supplier.⁴¹

XVI. THE INTANGIBLE INFRASTRUCTURE AND THE PRODUCTIVITY J-CURVE

Economic analysis has noted that the so-called AI bubble is fundamentally more solid, with the most successful AI companies already profitable and integrated into company operational workflows. The lack of noticeable gains in productivity can be attributed to the so-called “*Productivity J-Curve*”.

XVII. THE MECHANISM OF THE J-CURVE

General-purpose technologies such as AI are also accompanied by substantial investments in intangibles: co-invention of processes, managerial experience, and worker training, which are not easily quantified on balance sheets or in national accounts, resulting in initial productivity growth being understated.⁴² A study by Brynjolfsson and others finds that, in older manufacturing facilities, the costly integration of industrial AI, which can include abandoning structured production-management practices, leads to a short-term loss of performance followed by a long-run improvement.⁴³ In this case, the current level of total factor productivity (TFP) can be 15.9% higher than the official data in the US indicates; by late 2017, adjusting the record for computer hardware and software intangibles improved performance.⁴⁴

⁴¹ Edward Lanquist & Alexandra Moylan, *2026 AI Legal Forecast: From Innovation to Compliance*, Baker Donelson (Jan. 6, 2026), <https://www.bakerdonelson.com/2026-ai-legal-forecast-from-innovation-to-compliance> (last visited Jan. 18, 2026).

⁴² Erik Brynjolfsson, Daniel Rock & Chad Syverson, *The Productivity J-Curve: How Intangibles Complement General Purpose Technologies*, NBER Working Paper No. 25148 (Oct. 2018), https://www.nber.org/system/files/working_papers/w25148/w25148.pdf (last visited Jan. 18, 2026).

⁴³ Kristina McElheran, Mu-Jeung Yang, Zachary Kroff & Erik Brynjolfsson, *The Rise of Industrial AI in America: Microfoundations of the Productivity J-curve(s)*, CES Working Paper No. 25-27 (U.S. Census Bureau Apr. 2025), <https://www2.census.gov/library/working-papers/2025/adrm/ces/CES-WP-25-27.pdf> (last visited Jan. 18, 2026).

⁴⁴ Philipp Kernstock, Tamara Stahl, Andreas Hein & Helmut Krcmar, *Polycentric Governance of Data Ecosystems*, in *Proceedings of the International Conference on Information Systems (ICIS 2025)* (2025), https://www.aisel.aisnet.org/icis2025/sharing_econ/sharing_econ/22 (last visited Jan. 19, 2026).

XVIII. THE \$6.7 TRILLION INFRASTRUCTURE REQUIREMENT

To begin the *J-Curve* transformation of the current period of productivity slowdown to its actual state, colossal physical capital infrastructure will be necessary.⁴⁵ McKinsey projects that by 2030, the world will need up to US \$6.7 trillion in capital investment in data centres to support the growth of computing power.⁴⁶

AI Processing: The \$5.2 trillion investment is likely to increase AI-specific data centre capacity.⁴⁷

Traditional IT: The conventional IT applications require an investment of \$1.5 trillion.⁴⁸

Energy and Emissions: The current figure of 0.5% of combustion emissions from data centres may increase by 2.5 times in a scenario referred to as a “*Lift-Off Case*” of extreme AI adoption.⁴⁹

This Data Centre Gold Rush is already attracting the highest investments ever, with deals totalling up to US \$36.7 billion in the first half of 2024 alone. Still, project viability is now threatened by rising construction costs, material tariffs, and grid risks as AI demand outstrips supply.⁵⁰ The development of distributed computing models and energy-efficient systems is likely to transform this demand, and both developers and investors must be flexible.

XIX. THE POLITICS OF POLYCENTRIC GOVERNANCE OF THE DIGITAL COMMONS

A complex array of economic, legal, and technical factors, overlapping, all of which suggest that a monocentric, top-down system of governance is doomed to fail; instead, the idea of a polycentric governance, various autonomous centres of decision-making working together in a standard social order, is increasingly gaining momentum.⁵¹

XX. INFORMATION COMMONS OF DATA ECOSYSTEMS

Polycentric governance within data ecosystems (such as the Catena-X Automotive Network) is characterised by three modes: enabling (boundary regulation), sustaining (shared accountability), and

⁴⁵ Erik Brynjolfsson, *AI Changed Work Forever in 2025*, *Time* (Jan. 2, 2026), <https://time.com/7342494/ai-changed-work-forever/> (last visited Jan. 19, 2026).

⁴⁶ Chloe Lim, *Data Centres Are Expensive. Reits Are ‘Powerful Tools’ to Raise Capital – and Singapore Is Benefiting*, *The Business Times* (Dec. 4, 2025), <https://www.businesstimes.com.sg/companies-markets/data-centres-are-expensive-reits-are-powerful-tools-raise-capital-and-singapore-benefiting> (last visited Jan. 20, 2026).

⁴⁷ *Supra* note 3.

⁴⁸ Ecosperity, *Enabling a Sustainable AI Future*, Ecosperity (Dec. 8, 2025), <https://www.ecosperity.sg/en/insights/articles/enabling-a-sustainable-AI-future.html> (last visited Jan. 20, 2026).

⁴⁹ *Ibid.*

⁵⁰ *Supra* note 3.

⁵¹ Primavera De Filippi, Morshed Mannan, Sofia Cossar, Tara Merk & Jamilya Kamalova, *Blockchain Technology and Polycentric Governance* (European University Institute 2024), <https://cadmus.eui.eu/handle/1814/77030> (last visited Jan. 21, 2026).

scaling (provider recognition).⁵² This practice neither concentrates decision-making rights in the hands of a small number of inherent platform owners, as in purely algorithmic governance.

XXI. SMART CONTRACTS AND BLOCKCHAIN AS THE NEW ARCHITECTURE

This polycentric regime is provided by blockchain technology to shift IP out of a paper-based system of commons into the digital form of code (NFTs).⁵³ Rights owners can create a new framework of ownership and can automate licensing agreements.

Automated Licensing: The songwriter is recording a song as a virtual coin. A developer of AI who wants to use the song appeals to a smart contract, which immediately confirms the right to use the song and charges a licensing fee.⁵⁴

Decentralised Arbitration: Crowd juries have been implemented through platforms such as Kleros, which use token staking to resolve ownership disputes without resorting to a traditional court.⁵⁵

Endogenous Legitimacy: Legitimacy in these systems is based on the successful participation of all stakeholders and the possibility to leave the system if the rules are not favourable.⁵⁶ This technology-enabled solution balances AI innovation and innovative labour by removing transaction costs and licensing, thereby aligning developer and creator incentives.⁵⁷

XXII. CONCLUSION

The dark matter of traditional IP law in tackling Agentic AI and autonomous machine products is driving a fundamental realignment of intellectual property in the global digital economy, projected to reach US \$24 trillion by late 2025. The current Incentive-Access Paradox and the subsequent Tragedy of the Anti-commons are the key structural obstacles to that change. The judicial precedents such as Bartz and Kadrey to confirm that although the AI training is being adopted as the transformative fair use, the acquisition of data is an unavoidable legal and financial risk is affirmed by the “*Productivity J-Curve*” which indicates that the reason behind the current deceleration of the measurably increased productivity is a transient consequence of the enormous intangible and physical investments needed to establish a \$6.7 trillion digital infrastructure. In this new world, the human factor is no longer an

⁵² Philipp Kernstock, Tamara Stahl, Andreas Hein & Helmut Krcmar, *Polycentric Governance of Data Ecosystems*, in *Proceedings of the Int’l Conf. on Information Systems (ICIS 2025)* (2025), https://www.researchgate.net/publication/396016946_Polycentric_Governance_of_Data_Ecosystems (last visited Jan. 21, 2026).

⁵³ *Blockchain Technology and Polycentric Governance*, P2P Foundation Wiki, https://wiki.p2pfoundation.net/Blockchain_Technology_and_Polycentric_Governance (last visited Jan. 21, 2026).

⁵⁴ Christos A. Makridis & Joshua Ammons, *Reimagining IP Rights for the Generative AI Era: A Polycentric Governance Approach*, JoIE Blog (Aug. 5, 2025), <https://joie-blog.net/reimagining-ip-rights-for-the-generative-ai-era-a-polycentric-governance-approach> (last visited Jan. 22, 2026).

⁵⁵ *Ibid.*

⁵⁶ *Blockchain Technology and Polycentric Governance*, P2P Foundation Wiki, https://wiki.p2pfoundation.net/Blockchain_Technology_and_Polycentric_Governance (last visited Jan. 22, 2026).

⁵⁷ *Supra* note 51.

implementer but a facilitator, as the Chief Question Officer overseeing a hybrid labour market of AI agents. The future of intellectual property is not in eliminating access, but in the intelligent, automated orchestration of access.