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Beyond the Balance Sheet: Rethinking Intellectual Property Due Diligence in Modern M&A Transactions

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ABSTRACT

Knowledge assets have eclipsed tangible property as the principal drivers of corporate value, and the acquisition of intellectual property portfolios has accordingly become one of the foremost motivations for mergers and acquisitions worldwide. This paper examines why intellectual property due diligence can no longer be treated as a peripheral formality and argues that it is a strategic imperative in any transaction where intellectual property forms a meaningful component of the target's value. It analyses the distinct legal characteristics, validity conditions, and transactional risks attaching to patents, trademarks, copyrights, and trade secrets, and sets out the substantive components of a rigorous due diligence process, including portfolio mapping, chain-of-title verification, licence review, and the assessment of pending litigation and encumbrances. Drawing on the valuation of intellectual property assets, cross-border and jurisdictional complexities, and the competition law dimensions of intellectual property-intensive acquisitions, and on cautionary episodes such as the Google-Motorola, Verizon-Yahoo, and Waymo-Uber transactions, the paper addresses emerging challenges posed by data assets, artificial intelligence, and cybersecurity. It concludes by proposing a structured framework organised around five interrelated pillars: comprehensive asset identification, legal validation, commercial and contractual assessment, risk quantification, and strategic alignment.

Keywords: *Intellectual property, due diligence, mergers and acquisitions, patents, trademarks, trade secrets, intellectual property valuation, competition law.*

I. INTRODUCTION

The global economy has undergone a profound structural transformation over the past three decades, one in which knowledge assets have eclipsed tangible property as the primary drivers of corporate value. According to the World Intellectual Property Organization, intangible assets now represent the dominant component of market capitalisation across the world's leading

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economies.¹ A 2023 study by Ocean Tomo similarly found that intangibles constituted approximately ninety per cent of S&P 500 market value, a dramatic inversion from the conditions prevailing just four decades earlier.² Against this backdrop, the acquisition of intellectual property portfolios through mergers and acquisitions has become one of the foremost motivations for corporate consolidation worldwide.

Intellectual property, broadly understood as a cluster of legally protected exclusive rights over the products of human creativity and innovation, encompasses patents, trademarks, copyrights, trade secrets, and related rights.³ The international architecture governing these rights, anchored by the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), establishes minimum standards of protection that member states of the World Trade Organization are obliged to observe.⁴ At the domestic level, countries have enacted their own legislative frameworks. India, for instance, has codified intellectual property protection through the Patents Act 1970, the Trade Marks Act 1999, and the Copyright Act 1957, among other instruments.⁵ The United States operates under a distinct constitutional and statutory regime, most notably through the Leahy-Smith America Invents Act of 2011.⁶ The European Union, for its part, has developed a harmonised framework for trademark protection through its Union Trade Mark Regulation.⁷

Due diligence in mergers and acquisitions refers to the comprehensive investigation and verification process through which an acquirer examines the financial, legal, operational, and strategic attributes of a target company prior to completing a transaction. When intellectual property constitutes a material component of that target's value proposition, as it routinely does in technology and pharmaceutical acquisitions, the intellectual property due diligence process assumes singular importance. Failures in this domain can expose acquirers to post-closing litigation, royalty obligations, invalidity challenges, and reputational damage of potentially existential proportions.

¹ World Intellectual Property Organization, *WORLD INTELLECTUAL PROPERTY INDICATORS 2023* 15 (2023).

² Ocean Tomo, *Intangible Asset Market Value Study* (2023), <https://oceantomo.com/intangible-asset-market-value-study/>.

³ World Intellectual Property Organization, *Intellectual Property Handbook: Policy, Law and Use* 3-4 (2d ed. 2004).

⁴ Agreement on Trade-Related Aspects of Intellectual Property Rights art. 1, Apr. 15, 1994, 1869 U.N.T.S. 299 [hereinafter TRIPS Agreement].

⁵ The Patents Act, 1970, No. 39, Acts of Parliament, 1970 (India); The Trade Marks Act, 1999, No. 47, Acts of Parliament, 1999 (India); The Copyright Act, 1957, No. 14, Acts of Parliament, 1957 (India).

⁶ 35 U.S.C. § 101 (2018); Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011).

⁷ Regulation (EU) 2017/1001, of the European Parliament and of the Council of 14 June 2017 on the European Union Trade Mark, 2017 O.J. (L 154) 1.

The post-acquisition discovery of data breaches in the Verizon-Yahoo transaction of 2016 serves as a powerful cautionary illustration of the consequences that flow from inadequate intellectual property scrutiny.⁸ Episodes of this kind have prompted a reassessment of due diligence practice and lent urgency to the academic and professional examination of intellectual property in the merger and acquisition context.

This paper is structured as follows. The second part examines the conceptual and legal character of the principal categories of intellectual property encountered in mergers and acquisitions. The third part analyses the substantive components of a rigorous intellectual property due diligence process. The fourth part addresses the valuation of intellectual property assets. The fifth part explores jurisdictional and cross-border considerations. The sixth part considers the competition law dimensions of intellectual property-heavy acquisitions. The seventh part surveys emerging challenges in the digital and data-driven economy. The eighth part offers concluding observations and a framework for practice.

II. CATEGORIES OF INTELLECTUAL PROPERTY IN M&A TRANSACTIONS

The heterogeneity of intellectual property rights demands that due diligence practitioners adopt a category-specific approach, recognising that patents, trademarks, copyrights, and trade secrets each carry distinct legal characteristics, validity conditions, and transactional risks.⁹

A. Patents

Patents represent time-limited exclusive rights granted by the state in exchange for public disclosure of a novel, inventive, and industrially applicable innovation. In patent-intensive industries such as semiconductors, biotechnology, and telecommunications, an acquirer's primary motivation for a transaction may be the target's patent portfolio rather than its revenue streams or human capital.¹⁰

A threshold concern in patent due diligence is the question of ownership and chain of title. In employment contexts, the default rule across most jurisdictions is that inventions conceived by employees within the scope of their employment vest in the employer, subject to legislative qualifications.¹¹ This default can, however, be disrupted by ambiguous employment agreements, inadequate assignment documentation, prior academic affiliations, or inventions developed

⁸ Verizon Commc'ns Inc. & Yahoo! Inc., Amendment No. 1 to Stock Purchase Agreement (Feb. 20, 2017), SEC EDGAR.

⁹ Mark A. Lemley, *IP in a World Without Scarcity*, 90 N.Y.U. L. REV. 460, 462 (2015).

¹⁰ Catherine L. Fisk, *Removing the Fuel of Interest from the Fire of Genius: Law and the Employee-Inventor, 1830-1930*, 65 U. CHI. L. REV. 1127 (1998).

¹¹ The Patents Act, 1970, No. 39, Acts of Parliament, 1970, § 6 (India); *Bd. of Trs. of the Leland Stanford Junior Univ. v. Roche Molecular Sys., Inc.*, 563 U.S. 776 (2011).

using resources not belonging to the employer. The acquirer must therefore obtain and review all inventor assignment agreements, confirmatory assignments, and any governmental or institutional funding agreements that may trigger march-in rights or title disputes.

Beyond ownership, the due diligence team must evaluate the validity and enforceability of patents within the target's portfolio. A patent that appears valuable on its face may be subject to a declaratory judgment challenge¹² or may be vulnerable to invalidity arguments based on prior art. The doctrine of patent exhaustion, affirmed by the United States Supreme Court in *Quanta Computer, Inc. v. LG Electronics, Inc.*, further limits the scope of rights available to an assignee where the patentee or a licensee has previously sold a product embodying the patented invention.¹³ Similarly, the existence of standard-essential patents subject to fair, reasonable, and non-discriminatory (FRAND) licensing commitments can significantly curtail the commercial exploitation of an otherwise dominant portfolio.¹⁴

B. Trademarks

Trademarks function as indicators of origin, enabling consumers to distinguish the goods and services of one enterprise from those of another. In mergers and acquisitions, the target's brand portfolio often constitutes a material element of enterprise value, particularly in the consumer goods, retail, and media sectors.

Due diligence in respect of trademarks must address the breadth and geographic scope of registered rights, the existence of pending applications, opposition proceedings, and cancellation actions, and the overall strength and registrability of the marks in question. The acquirer should also conduct clearance searches to identify potential conflicts with third-party marks, since an unresolved infringement risk may reduce the acquired brand's commercial utility.¹⁵ The risk of trademark invalidity on grounds of genericness or abandonment through non-use must likewise be evaluated.¹⁶

C. Copyrights

Copyright law protects original works of authorship fixed in a tangible medium, including software code, literary works, artistic works, and databases. In technology-sector acquisitions, software copyrights are often among the most commercially significant assets subject to due diligence review.¹⁷

¹² *MedImmune, Inc. v. Genentech, Inc.*, 549 U.S. 118, 127 (2007).

¹³ *Quanta Computer, Inc. v. LG Electronics, Inc.*, 553 U.S. 617 (2008).

¹⁴ *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir. 2015).

¹⁵ *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006).

¹⁶ *King-Seeley Thermos Co. v. Aladdin Industries, Inc.*, 321 F.2d 577 (2d Cir. 1963).

¹⁷ *Viacom Int'l Inc. v. YouTube, Inc.*, 676 F.3d 19 (2d Cir. 2012).

A foundational principle across major jurisdictions is that copyright subsists only in works exhibiting a minimum degree of originality.¹⁸ For the acquirer, this demands an examination of whether the target's creative output genuinely meets the originality threshold and whether the target actually holds the copyright rather than merely a licence to use the underlying work. Ownership of software developed by independent contractors presents particular risks, since, absent a written instrument of assignment, copyright in commissioned works may remain with the contractor rather than vest in the commissioning party.¹⁹ This principle holds under both United States copyright law and the Indian Copyright Act 1957, though with certain statutory variations.²⁰

D. Trade secrets

Trade secrets encompass commercially valuable information that derives its economic significance from its continued confidentiality and in respect of which reasonable steps have been taken to preserve secrecy.²¹ Unlike patents or trademarks, trade secrets do not require formal registration and can, in principle, subsist indefinitely. Their protection is contingent entirely upon the rigour and consistency of the confidentiality measures adopted by the holder.

The *Waymo v. Uber* litigation, which arose directly from the circumstances surrounding Google's Waymo project and the subsequent founding of Otto by Anthony Levandowski, is an instructive illustration of how trade secret contamination can unravel an otherwise strategically sound acquisition.²² When Uber acquired Otto, it allegedly obtained access to trade secrets improperly taken from Waymo, a fact that ultimately resulted in settlement proceedings worth hundreds of millions of dollars and inflicted lasting reputational damage upon the acquiring entity.

Intellectual property due diligence in relation to trade secrets must therefore examine whether confidentiality agreements are comprehensive and consistently enforced, whether access controls and information security measures are adequate, whether key employees are subject to non-disclosure and non-compete obligations, and whether any employees have recently departed from, or been hired from, competitors in circumstances that create a contamination risk.²³

¹⁸ *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340 (1991).

¹⁹ 17 U.S.C. § 204(a) (2018); *Effects Associates, Inc. v. Cohen*, 908 F.2d 555 (9th Cir. 1990).

²⁰ The Copyright Act, 1957, No. 14, Acts of Parliament, 1957, § 17 (India); *Eastern Book Co. v. D.B. Modak*, (2008) 1 SCC 1 (India).

²¹ Defend Trade Secrets Act of 2016, 18 U.S.C. § 1839(3) (2018); TRIPS Agreement, *supra* note 4, art. 39(2).

²² *Waymo LLC v. Uber Techs., Inc.*, No. 3:17-cv-00939-WHA (N.D. Cal. filed Feb. 23, 2017); *United States v. Levandowski*, No. 19-cr-00377-WHA (N.D. Cal. Mar. 4, 2020).

III. COMPONENTS OF A RIGOROUS IP DUE DILIGENCE PROCESS

A comprehensive intellectual property due diligence process ordinarily proceeds through several interrelated stages, each of which yields information critical to the acquirer's assessment of transactional risk and to the formulation of appropriate protective covenants in the acquisition agreement.²⁴

A. IP inventory and portfolio mapping

The initial phase of intellectual property due diligence involves the construction of a complete and accurate inventory of the target's intellectual property assets. This requires the acquirer's legal and technical teams to obtain and review all relevant records, including patent portfolios with prosecution histories, trademark registers, copyright registrations, domain name registrations, licence agreements both inbound and outbound, non-disclosure agreements, and assignments. The inventory process should extend beyond formally registered rights to encompass unregistered intellectual property, including unregistered trademarks, unpublished manuscripts, proprietary algorithms, and know-how.²⁵

Patent landscape analysis has become an increasingly sophisticated undertaking, aided by computational tools that enable large-scale examination of patent citation networks, claim scope, and forward citation activity. Cisco Systems, for instance, has consistently deployed sophisticated patent portfolio analytics in its numerous technology acquisitions, allowing it to identify the strategic value of target patents in relation to its existing portfolio and to anticipate post-acquisition litigation risks.²⁶

B. Ownership verification and chain of title

Ownership verification is perhaps the most legally consequential component of intellectual property due diligence. An acquirer that pays a premium for a target's intellectual property assets only to discover post-closing that those assets are owned by a third party, or are subject to a prior undisclosed security interest, faces the prospect of acquiring nothing of legal substance.²⁷

Chain-of-title review demands examination of all assignment agreements connecting each inventor or author to the target entity, identification of any encumbrances such as pledges or

²³ Robert G. Bone, *A New Look at Trade Secret Law: Doctrine in Search of Justification*, 86 CALIF. L. REV. 241 (1998).

²⁴ Richard Raysman, Peter Brown & Kenneth A. Adler, *Intellectual Property Licensing: Forms and Analysis* ch. 7 (2022).

²⁵ World Intellectual Property Organization, *Patent Analytics for Business* 22 (2022).

²⁶ Cisco Sys., Inc., Annual Report (Form 10-K) (Sept. 7, 2023).

²⁷ Roger E. Schechter & John R. Thomas, *Intellectual Property: The Law of Copyrights, Patents and Trademarks* 689 (2010).

liens registered against intellectual property assets, verification that all required governmental formalities for assignment recordation have been observed, and confirmation that no prior licences are inconsistent with the acquirer's intended use of the intellectual property.²⁸

C. Licence agreement review

Licence agreements require particularly careful scrutiny in a merger and acquisition context. Change-of-control provisions, which are routinely inserted into intellectual property licence agreements, may allow a licensor to terminate the licence or adjust its terms upon a change of control of the licensee. If a material licence contains such a provision and the target has not secured the licensor's advance consent to the transaction, the acquirer may find that a key intellectual property licence terminates at closing.²⁹

Equally significant is the review of open-source software usage. Many technology companies incorporate third-party open-source code into their proprietary software under licences such as the GNU General Public License, which may carry conditions requiring that modifications be made publicly available. Where a target has failed to comply with open-source licence obligations, the acquirer may inherit exposure to claims for source code disclosure that fundamentally compromise the commercial value of the acquired software.

D. Pending litigation, claims, and encumbrances

An acquirer must comprehensively identify all pending and threatened intellectual property litigation involving the target, whether as plaintiff or defendant. Patent infringement suits, invalidity challenges, trademark opposition proceedings, copyright disputes, and trade secret misappropriation claims each represent contingent liabilities that must be quantified and reflected in pricing negotiations or in the acquisition agreement's representations and warranties.³⁰

The *eBay* doctrine, established by the United States Supreme Court in *eBay Inc. v. MercExchange, L.L.C.*, has significantly affected the assessment of patent litigation risk by limiting the automatic availability of injunctive relief.³¹ Nonetheless, the existence of credible infringement claims against a target's core products can still materially affect the transaction's risk-adjusted value. The due diligence team should also review whether any intellectual

²⁸ TRIPS Agreement, *supra* note 4, art. 28; Paris Convention for the Protection of Industrial Property art. 4, Mar. 20, 1883, 21 U.S.T. 1583, 828 U.N.T.S. 305.

²⁹ Roger E. Schechter & John R. Thomas, *Intellectual Property: The Law of Copyrights, Patents and Trademarks* 689 (2010).

³⁰ *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91 (2011).

³¹ *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391-94 (2006); Mark A. Lemley & Carl Shapiro, *Patent Holdup and Royalty Stacking*, 85 TEX. L. REV. 1991, 2035-38 (2007).

property assets are pledged as collateral under financing arrangements, since such pledges could restrict the acquirer's ability to freely exploit those assets post-closing.

IV. VALUATION OF INTELLECTUAL PROPERTY ASSETS

The valuation of intellectual property assets in the merger and acquisition context is among the most technically demanding and professionally contested aspects of the transaction process. Unlike tangible assets, which can often be valued by reference to observable market prices or replacement costs, intellectual property assets derive their value from legal exclusivity, commercial exploitation potential, and strategic fit, all of which are inherently uncertain and subject to considerable methodological dispute.

Three principal methodologies are employed in intellectual property valuation, each with distinct theoretical foundations and practical limitations. The income approach derives value from the anticipated future economic benefits attributable to the asset, typically measured by discounting projected royalty income or the incremental cash flows enabled by the intellectual property. The International Valuation Standards Council has endorsed this approach as appropriate for most valuation contexts.³² The market approach determines value by reference to prices observed in comparable transactions, a methodology that is sound in principle but limited in practice by the relative scarcity of truly comparable intellectual property transactions and the confidentiality that often surrounds the financial terms of such deals.³³ The cost approach values intellectual property by reference to the cost of developing a comparable asset from scratch, which is often considered a floor value rather than an indication of market value.

The Google-Motorola acquisition offers a vivid illustration of the risks inherent in intellectual property valuation in the merger and acquisition context. When Google acquired Motorola Mobility in 2012 for approximately \$12.5 billion, the acquisition was widely understood to be principally motivated by Motorola's portfolio of approximately 17,000 patents, which Google sought to deploy defensively against Android-related litigation.³⁴ The subsequent finding that many of the most commercially important Motorola patents were encumbered by FRAND licensing commitments substantially limited Google's ability to exploit those patents exclusively and diminished the strategic leverage typically associated with large patent portfolios.³⁵ Google ultimately sold Motorola to Lenovo in 2014 for approximately \$2.9 billion while retaining most of the patents, an outcome that reflected both the overvaluation of the

³² Int'l Valuation Standards Council, *International Valuation Standards: IVS 210 Intangible Assets* ¶¶ 50.1-50.5 (2022).

³³ Rev. Rul. 59-60, 1959-1 C.B. 237.

³⁴ *Google Buys Motorola Mobility for US\$12.5 Billion*, PCWORLD (Aug. 15, 2011); *Google, Needing Patents, Buys Motorola Wireless for \$12.5 Billion*, ARS TECHNICA (Aug. 15, 2011).

intellectual property assets and the limitations of the due diligence process that preceded the acquisition.

Transfer pricing considerations also arise where intellectual property is to be transferred across jurisdictions within a corporate group as part of a post-acquisition restructuring. Tax authorities in multiple jurisdictions impose arm's length pricing requirements on intra-group transfers of intangibles, and the acquirer must ensure that proposed post-acquisition intellectual property holding structures are consistent with applicable transfer pricing regulations.³⁶

V. CROSS-BORDER AND JURISDICTIONAL CONSIDERATIONS

Cross-border mergers and acquisitions involving intellectual property assets present a distinctive set of jurisdictional complexities, arising from the fundamentally territorial character of most intellectual property rights. A patent granted by the Indian Patent Office confers rights only within India, and the acquirer of such a patent obtains no rights in other jurisdictions absent separate grants in those territories.³⁷ This territorial limitation demands that the due diligence team map the geographic footprint of the target's portfolio against the acquirer's intended markets of exploitation.

Patent prosecution procedures and substantive patentability standards vary meaningfully across jurisdictions. Pharmaceutical companies undertaking cross-border acquisitions must, for instance, be acutely sensitive to India's distinctive patentability requirements under Section 3(d) of the Patents Act 1970, which significantly restricts the patentability of incremental pharmaceutical innovations.³⁸ A patent valid in the United States or Europe may not have been granted, or may not be grantable, in India, materially affecting the acquirer's ability to exploit the acquired technology in the Indian market.

The Nortel Networks bankruptcy and the subsequent auction of its patent portfolio in 2011 offers an instructive illustration of the cross-border dimensions of intellectual property transactions. A consortium of technology companies, including Apple, Microsoft, and Sony, ultimately acquired the Nortel portfolio for approximately \$4.5 billion, a sum that reflected both

³⁵ *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024, 1030-34 (9th Cir. 2015); Statement of the Department of Justice's Antitrust Division on Its Decision to Close Its Investigations of Google's Acquisition of Motorola Mobility Holdings Inc. (Feb. 13, 2012).

³⁶ Treas. Reg. § 1.482-4(b) (2022).

³⁷ The Patents Act, 1970, No. 39, Acts of Parliament, 1970 (India); TRIPS Agreement, *supra* note 4, art. 28.

³⁸ The Patents Act, 1970, No. 39, Acts of Parliament, 1970, § 3(d) (India); *Novartis AG v. Union of India*, (2013) 6 SCC 1 (India).

the global geographic scope of the patents and the consortium's assessment of their defensive and offensive strategic value across multiple jurisdictions.³⁹

Foreign investment restrictions add a further jurisdictional layer of complexity. Certain categories of intellectual property-rich companies, particularly those operating in sectors considered strategically sensitive, such as defence, telecommunications, and advanced semiconductors, may require governmental approval before a foreign acquirer can complete a transaction. The regulatory environment surrounding the proposed acquisition of TikTok's United States operations illustrates the extent to which national security concerns can impede or precondition intellectual property transfers across borders.⁴⁰

In transactions involving multiple jurisdictions, the due diligence team should further review whether the target holds rights under international treaties such as the Patent Cooperation Treaty, the Madrid Protocol for trademarks, or the Hague System for industrial designs, and assess the procedural status of any international applications.⁴¹

VI. COMPETITION LAW DIMENSIONS OF IP-INTENSIVE ACQUISITIONS

Intellectual property and competition law occupy an inherently uneasy relationship. Intellectual property rights confer exclusivity by design, and the aggregation of intellectual property portfolios through merger and acquisition activity can produce concentrations of market power that draw the attention of competition authorities. Intellectual property due diligence must therefore incorporate a competition law analysis that assesses whether the proposed acquisition is likely to attract regulatory scrutiny and what remedies may be required as a condition of clearance.⁴²

Antitrust concerns in intellectual property-intensive transactions arise most acutely where the acquirer and target hold competing intellectual property rights in the same technology space, where the acquisition would result in the aggregation of standard-essential patents that competitors require to operate in a market, or where the transaction forecloses a competitor's access to technology upon which it depends.⁴³ The Federal Trade Commission's scrutiny of Qualcomm's licensing practices, the Competition Commission of India's examination of

³⁹ *In re Nortel Networks Inc.*, No. 09-10138 (Bankr. D. Del. July 11, 2011); *Rockstar Consortium US LP v. Google Inc.*, No. 2:13-CV-00893-JRG-RSP (E.D. Tex. filed Oct. 31, 2013).

⁴⁰ *TikTok Inc. v. Trump*, 507 F. Supp. 3d 92 (D.D.C. 2020); Exec. Order No. 13,942, 85 Fed. Reg. 48,637 (Aug. 11, 2020).

⁴¹ World Intellectual Property Organization, *WIPO-Administered Treaties*, <https://www.wipo.int/treaties/en/> (last visited May 19, 2024).

⁴² The Competition Act, 2002, No. 12, Acts of Parliament, 2003, § 6 (India); Council Regulation 139/2004, 2004 O.J. (L 24) 1 (EC).

⁴³ *FTC v. Qualcomm Inc.*, 969 F.3d 974 (9th Cir. 2020); *In re Union Oil Co. of Cal.*, FTC Docket No. 9305 (2005).

Monsanto's restrictive licensing arrangements for genetically modified seed technology,⁴⁴ and the European Commission's conditional clearance of Microsoft's acquisition of Activision Blizzard each reflect the increasing rigour with which competition authorities assess intellectual property-related conduct in the merger and acquisition context.⁴⁵

The due diligence team should therefore identify any market-definition concerns that arise from the combination of the parties' intellectual property portfolios, assess the likelihood that competition clearances will be required in multiple jurisdictions, and evaluate the potential remedies that regulators may impose, including divestiture of specific assets, licensing commitments, or behavioural undertakings. These considerations can materially affect transaction structure, timing, and pricing.

VII. EMERGING CHALLENGES IN THE DIGITAL ECONOMY

The digitalisation of economic activity and the rise of data-driven business models have introduced a range of intellectual property due diligence challenges that fall only partially within the traditional framework of patent, trademark, and copyright analysis. Acquirers of technology companies increasingly find that the most commercially significant assets they are purchasing are not neatly classified within established intellectual property categories.

Data assets represent a paradigm case. Large proprietary datasets may be enormously valuable to an acquirer seeking to train artificial intelligence models or to personalise digital services at scale, yet these assets may enjoy no formal intellectual property protection beyond the reach of trade secret law or database protection rights, whose scope varies considerably across jurisdictions.⁴⁶ The Verizon-Yahoo acquisition is instructive in this regard. Verizon agreed to acquire Yahoo's core internet business in 2016 for approximately \$4.83 billion, a transaction premised in substantial part upon Yahoo's user data assets. The subsequent revelation of two catastrophic data breaches affecting several billion Yahoo user accounts, which Yahoo had known about at the time of negotiations but failed to disclose, compelled Verizon to renegotiate the purchase price downward by \$350 million.⁴⁷ The episode underscored the imperative of integrating data governance and cybersecurity reviews into intellectual property due diligence protocols for transactions in which data constitutes a primary value driver.

⁴⁴ *Monsanto Holdings Pvt. Ltd. v. Competition Comm'n of India*, 2020 SCC OnLine Del 598 (India).

⁴⁵ *Microsoft/Activision Blizzard*, Case M.10646, Commission Decision C(2023) 3199 final (May 15, 2023).

⁴⁶ Ponemon Inst. & IBM Sec., *Cost of a Data Breach Report 2023* 4 (2023).

⁴⁷ Verizon Commc'ns Inc., Current Report (Form 8-K) (July 25, 2016); *In re Yahoo! Inc. Sec. Litig.*, No. 17-cv-06102-LHK (N.D. Cal. 2019).

Artificial intelligence presents a further frontier of due diligence complexity. Questions of intellectual property ownership in AI-generated outputs remain unresolved across most legal systems, and the training data underlying AI models may itself be subject to copyright claims by the creators of the underlying works. An acquirer purchasing an artificial intelligence company must therefore investigate not only whether the target holds intellectual property in its models and outputs but also whether the training methodology exposes the target to copyright infringement liability.⁴⁸

Cybersecurity due diligence has also become an inseparable component of intellectual property due diligence, particularly in light of the increasing frequency and severity of cyber-attacks targeting corporate intellectual property. An acquirer must assess whether the target has implemented adequate technical and organisational measures to protect its intellectual property from unauthorised access, whether past breaches have compromised the trade secret status of any information assets, and whether any regulatory notifications arising from past incidents remain outstanding.

The intersection of intellectual property and pharmaceutical regulation also deserves mention, particularly in the context of cross-border acquisitions in the life sciences sector. Drug approval linkage regimes, exclusivity periods for biologics and small-molecule drugs, and the complex interaction between patent protection and regulatory data exclusivity create a layered protection framework whose components must each be assessed in the due diligence process.⁴⁹

VIII. TOWARDS A STRUCTURED FRAMEWORK FOR IP DUE DILIGENCE: CONCLUDING OBSERVATIONS

The foregoing analysis demonstrates that intellectual property due diligence in the merger and acquisition context is a demanding, multi-disciplinary undertaking that cannot responsibly be reduced to a standard-form checklist or delegated exclusively to any single professional discipline. The proper conduct of intellectual property due diligence requires the coordinated engagement of legal counsel specialising in intellectual property, transactional attorneys, technical experts including patent engineers and software architects, financial valuation specialists, and regulatory advisors.

On the basis of the analysis presented, this paper proposes a structured framework for intellectual property due diligence in mergers and acquisitions organised around five sequential

⁴⁸ Jane C. Ginsburg & Luke Ali Budiardjo, *Authors and Machines*, 34 BERKELEY TECH. L.J. 343, 376-84 (2019).

⁴⁹ TRIPS Agreement, *supra* note 4, arts. 28, 39(3); 21 U.S.C. § 355(j) (2024); 42 U.S.C. § 262(k) (2024); Roger E. Schechter & John R. Thomas, *Intellectual Property: The Law of Copyrights, Patents and Trademarks* 665-72 (2010).

but interrelated pillars. The first pillar is comprehensive asset identification, which involves the construction of a complete and verified inventory of all intellectual property assets held, licensed, or used by the target, extending beyond formally registered rights to encompass unregistered intellectual property, data assets, and know-how. The second pillar is legal validation, which requires a rigorous assessment of the ownership, validity, enforceability, and scope of each material asset, including chain-of-title review, prosecution history analysis, and competitor clearance assessment.

The third pillar is commercial and contractual assessment, which involves a thorough review of all licence agreements, both inbound and outbound, with particular attention to change-of-control provisions, open-source obligations, sublicensing rights, and territorial restrictions. The fourth pillar is risk quantification, which requires the identification and monetary calibration of all contingent liabilities arising from pending or threatened litigation, regulatory investigations, data breaches, and competition law concerns. The fifth pillar is strategic alignment, which demands an assessment of the degree to which the target's intellectual property portfolio complements or overlaps with the acquirer's existing assets and long-term strategic objectives.

It is equally important that the outcomes of intellectual property due diligence are properly reflected in the transactional documentation. Representations and warranties regarding intellectual property ownership, validity, and non-infringement should be comprehensive and appropriately qualified. Indemnification provisions should address the specific intellectual property risks identified during due diligence. Conditions precedent to closing should include the resolution of material intellectual property concerns identified during the review process.

Looking ahead, the progressive integration of artificial intelligence, machine learning, and big data into value-creation processes across industries will only deepen the strategic importance of intellectual property in mergers and acquisitions. Regulatory frameworks governing data, artificial intelligence, and cybersecurity are evolving rapidly and unevenly across jurisdictions, creating an increasingly complex compliance landscape that due diligence teams must navigate. This paper submits that law firms, corporate legal departments, and investment banks alike must invest substantially in developing the interdisciplinary capabilities required to conduct intellectual property due diligence at the standard demanded by modern transactional environments.

In conclusion, intellectual property due diligence is not a peripheral formality but a strategic imperative in any merger or acquisition where intellectual property assets constitute a meaningful component of the target's value. The consequences of inadequate intellectual

property due diligence, as vividly illustrated by the Google-Motorola, Verizon-Yahoo, and Waymo-Uber episodes, extend far beyond the financial to encompass litigation risk, regulatory exposure, and reputational harm of the most serious kind. An acquirer that approaches intellectual property due diligence with appropriate rigour and interdisciplinary depth is far better positioned not only to avoid the pitfalls that have befallen its less diligent counterparts but also to unlock the full strategic and commercial potential of the intellectual property assets it acquires.
