

THE NEW COGNITIVE PROPERTY:
HUMAN CAPITAL LAW AND THE REACH OF INTELLECTUAL
PROPERTY

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Scire tuum nihil est, nisi te scire hoc sciat alter

[Your knowledge is nothing if no one else knows you know it]

– Latin Proverb

INTRODUCTION

Contemporary law has become grounded in the conviction that not only the *outputs* of innovation – artistic expressions, scientific methods, and technological advances – but also the *inputs* of innovation – skills, experience, know-how, professional relationships, creativity and entrepreneurial energies – are subject to control and propertization. In other words, we now face a reality of not only the expansion of intellectual property but also *cognitive property*. The new cognitive property has emerged under the radar, commodifying intellectual intangibles which have traditionally been kept outside of the scope of intellectual property (IP). This article introduces the growing field of human capital law, at the intersections of IP law, contract and employment law, and antitrust law, and cautions against the devastating effects of the growing enclosure of cognitive capacities in contemporary markets.

Regulatory and contractual controls on human capital – post-employment restrictions including non-competition contracts, non-solicitation, non-poaching, and anti-dealing agreements; collusive do-not-hire talent cartels; pre-invention assignment agreements of patents, copyright, as well as non-patentable and non-copyrightable ideas; and non-disclosure agreements, trade secret laws, and economic espionage

prosecution against former insiders – are among the fastest growing frontiers of market battles.¹ Regionally and globally, these disputes heavily shape industrial competition. Through this web of extensively employed mechanisms, knowledge that has traditionally been deemed part of the public domain becomes proprietary. Pre-innovation assignment agreements regularly go beyond the subjects that intellectual property deem commodifiable. They also regularly reach into the future, propertizing innovation that has not yet been conceived. Non-disclosure agreements span beyond traditionally defined secrets under trade secrecy laws and are routinely enforced by courts.² Violations of secrecy requirements are also increasingly criminalized, chilling exchanges that are recognized as productive and consistent with professional norms. Non-compete agreements are now required in almost every industry and position, stymieing job mobility and information flows. Beyond the individualized agreements between firms and employees, new antitrust investigations of Silicon Valley giants, including Apple, Google, Intel, eBay, and Pixar, reveal the rise of collusive anti-poaching agreements between firms. Post-employment restrictions have become so widespread that they form a cognitive property thicket which curtails efficient recruitment efforts and entrepreneurship.

While intellectual property law restricts knowledge and information that cannot be taken out of the public domain, this delicate balance is subverted in the emerging field of human capital law. In patent law, the lines between non-patentable abstract ideas and patentable inventions are heavily monitored. Most recently, in June 2014, the Supreme Court unanimously ruled that a computer-implemented electronic escrow service for facilitating financial transactions was ineligible for patent protection because the claims were drawn to an abstract idea rather than a patentable invention.³ Similarly, in copyright law the boundaries between expressions and ideas are extensively policed to ensure that ideas themselves will become property.⁴ And yet, this article uncovers how the logic of

¹ Steven Greenhouse, *Noncompete Clauses Increasingly Pop Up in Array of Jobs*, N.Y. times, June 2014; ORLY LOBEL, *TALENT WANTS TO BE FREE: WHY WE SHOULD LEARN TO LOVE RAIDS, LEAKS, AND FREE RIDING* (Yale University Press 2013).

² Terry M. Dworkin & Elletta S. Callahan, *Buying Silence*, 36 AM. BUS. L. J. 151 (1998).

³ *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347 (2014).

⁴ For example, in *Harper & Row Publishers, Inc. v. Nation Enterprises*, the Supreme Court stated that "copyright's idea/expression dichotomy 'strike[s] a definitional balance between the First Amendment and the Copyright Act by permitting free communication of facts while still protecting an author's expression.'" *Harper & Row Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 556 (1985).

intellectual property, cautiously maintaining a balance between monopolized information and the public domain, between propertized intangibles and knowledge flow, is undermined by a second, and rapidly growing, layer of cognitive controls through human capital law. The expansion of controls over human capital has thus become the blind spot of intellectual property debates.

The talent wars are heated. More than ever before, the recruitment, retention, and engagement of employees sit atop business' priority lists,⁵ and yet human capital law remains diffuse and murky. Analyzing the current state of human capital law against new empirical research, this article challenges orthodox economic assumptions about the need for cognitive property, demonstrates the inadvertent harm from the unrestrained shifts toward such controls, and calls for the recognition of human capital as a shared public resource. The realities of twenty-first century production and competition, which have changed work patterns and increased the premium on constant innovation, coincide with the accumulation of new empirical insights on innovation and knowledge creation. While these developments are of great significance, legal scholarship on human capital remains surprisingly thin. The traditional and under-developed analysis of human capital law views controls over human capital as necessary to generate investment and growth. At the same time, a growing body of empirical evidence indicates that excessive human capital controls have detrimental effects. Law's role in safeguarding and promoting human capital as a shared resource is little understood. A closer study of human capital law regimes suggests that the most successful regional economies have relied on legal regimes that nurture a cognitive commons, protect mobility, and encourage the densification of knowledge networks.

The article proceeds as follows: Section I argues that the contemporary intellectual property debates have obscured the broader ways in which knowledge and the potential to innovate are restricted. The section presents three interrelated expansions of human capital controls. First, *subject-wise*, through agreements assigning all innovation "*whether patentable or non-patentable; whether copyrightable or non-copyrightable*," as well as through developments in trade secret law, the propertization of intangible assets has expanded deep into the intangibility spectrum, enclosing knowledge that falls outside the scope of patent and

⁵ Josh Bersin, *The Year of the Employee: Predictions For Talent, Leadership, And HR Technology*, FORBES, December 19, 2013.

copyright. The increased criminalization of trade secret protections, far more amorphyously defined than other IP pillars, functions to further subvert the boundaries between protectable and non-protectable knowledge. Second, *time-wise*, ownership has expanded to future innovation as well as attempts to go back in time and capture prior knowledge that an employee held when joining a firm. The expansion includes a rise in both pre-innovation assignment contracts, including trailer clauses, which reach into the post-employment period to assign IP ownership back to the firm, as well as new legal constructs, including the assignor estoppel doctrine, which prevents assignors from challenging the validity of a patent. The assignor estoppel doctrine dramatically limits the defenses available to former employees who seek to compete in the industry and turns these experienced into legal liabilities of the new firms which recruit them. Third, *scope-wise*, recent years have witnessed a colossal rise in the use of non-competes along with a shift from individualized controls to meta-controls - cognitive cartels - as evidenced in the ongoing antitrust class action suit against Silicon Valley high-tech giants for their no-poaching agreements.

Turning to new empirical research on the nexus between innovation and human capital, Section II uncovers the harms of the new cognitive property by developing a novel taxonomy of different types of knowledge as they relate to human capital flows: tacit, relational, networked, motivational, and disruptive. Each aspect of knowledge helps explain the various harmful effects of the new cognitive property. The section analyzes these effects of contemporary human capital law through the lens of new economic research about endogenous growth, labor market search, and innovation networks, demonstrating the extent to which markets benefit from continuous investment in shared cognitive capital. Section III argues that the rise in cognitive controls should be understood as the Third Enclosure Movement, turning human capital and intangibles of the mind - knowledge, experience, skill, creativity, and network - into property, with detrimental effects on the public domain. The section explains these developments in relation to the ongoing shift in viewing IP through the lens of antitrust to the lens of property. The expanding lens of property into the intangibles of the mind has now reached the next frontier, enclosing not merely innovation but the potential for innovation. The section further shows how regions that promote employee mobility encourage positive spillovers and densification of knowledge networks, which lead to economic growth and innovation, and conversely how regions that restrict employee mobility stifle growth. Finally, the section demonstrates how the threat of litigation diminishes the quality of human capital and encourages companies to hire employees with no experience rather than seasoned

employees. The new cognitive property benefits incumbent firms with superior resources and chills new market entry. The article concludes with a call to reform human capital law from a nebulous set of harmful doctrines to a body of law committed to the promotion of innovation, knowledge flow, and economic growth.

I. ERECTING COGNITIVE FENCES: FROM OUTPUTS TO INPUTS

A. *Human Capital Law and the Knowledge Economy*

In the past two decades, scholars from a wide variety of disciplines have warned against the over-expansion of knowledge controls through intellectual property policy. The debate surrounding the effects of IP laws on inventive activity and technological progress is enduring and lively. At the same time, the field of human capital – at the intersection between IP law, contract law, employment law, and antitrust – has been relatively neglected and presents urgent and fertile grounds for important inquiry on how knowledge is created, owned, distributed, and shared in contemporary economies. A closer look at human capital law reveals a dangerous expansion of controls over cognitive capacities, far beyond the bargain struck in intellectual property law.

Nobel Laureate Elinor Ostrom, who pioneered research on economic governance, described knowledge as “a shared resource, a complex ecosystem that is a commons—a resource shared by a group of people that is subject to social dilemmas.”⁶ Ostrom defined knowledge as all intelligible ideas, information, and data. While Ostrom viewed knowledge as a shared resource, IP recognizes some forms of knowledge as privately owned. This legal conceptualization of knowledge as property is a fairly recent development, reaching its dominance around the world only in the past century.⁷ In ancient times, there was little formal protection for intangible goods. Over time, and most dramatically in the past few decades, notions over ownership of information and knowledge have significantly evolved.

⁶ ELINOR OSTROM & CHARLOTTE HESS, UNDERSTANDING KNOWLEDGE AS A COMMONS: FROM THEORY TO PRACTICE (2006).

⁷ EDWARD C. WALTERSCHEID, THE NATURE OF THE INTELLECTUAL PROPERTY CLAUSE: A STUDY IN HISTORICAL PERSPECTIVE (2002).

The term intellectual property itself did not become prevalent until the late 20th century.⁸

The drive to control information through legal tools is obvious: in its unregulated state, information travels quickly. Knowledge is, by its very nature, a public good, and it expands and multiplies without running out. Without effort, ideas flow freely. Thomas Jefferson viewed the free spread of ideas, “over the globe, for the moral and mutual instruction of man, and improvement of his conditions” as akin to air and fire:

[Ideas are] peculiarly and benevolently designed by nature, when she made them, like fire, expandable over all space, without lessening their density in any point, and like the air in which we breathe, move, and have our physical being, incapable of confinement or exclusive appropriation.⁹

Yet, especially in recent years with the shift from an industrial economy to a knowledge and service based economy, ideas have enormous commercial value. For this reason, over the past few decades, IP rights have expanded in length of protection, subject matter, and scope.¹⁰ Patent eligibility has expanded to new categories, such as computer software, business methods, and genetically modified organisms.¹¹ Lawmakers have expanded and lengthened copyright protections.¹² Trademark law now protects the value of the brand beyond the logo and beyond the original purpose of preventing consumer confusion.¹³ Trade secret law spans new subject matters and modes of infringement.¹⁴ Together, this body of law has

⁸ BRAD SHERMAN & LIONEL BENTLY, *THE MAKING OF MODERN INTELLECTUAL PROPERTY LAW: THE BRITISH EXPERIENCE 1760-1911* (Cambridge University Press 1999).

⁹ Letter from Thomas Jefferson to Isaac McPherson, August 13, 1813, in *The Complete Jefferson*, ed. Saul K. Padover, 1011, 1015 (New York: Duell, Sloan, and Pearce, 1943).

¹⁰ Andrew Beckerman-Rodau, *The Problem with Intellectual Property Rights: Subject Matter Expansion*, 3 *YALE J.L. & TECH.* 35 (2011).

¹¹ *See generally*, three recent articles on patent subject matter eligibility.

¹² Sonny Bono Copyright Term Extension Act, Pub. L. No. 105-298, Stat. 2827 (1998) (codified at 17 U.S.C. §§ 108, 203, 301-304); Andrew Beckerman-Rodau, *The Problem with Intellectual Property Rights: Subject Matter Expansion*, 13 *YALE J.L. & TECH.* 36, 63 (2011).

¹³ Mark A. Lemley & Mark McKenna, *Irrelevant Confusion*, 62 *STAN. L. REV.* 413 (2010); Michael A. Johnson, *The Waning Consumer Protection Rationale of Trademark Law: Overprotective Courts and the Path to Stifling Post-Sale Consumer Use*, 101 *TRADEMARK REP.* 1320 (2011); *The Devil Wears Trademark: How the Fashion Industry Has Expanded Trademark Doctrine to Its Detriment*, 127 *HARV. L. REV.* 995 (2014).

¹⁴ Orly Lobel, *Filing a Patent Versus Keeping Your Invention a Trade Secret*, *HARV. BUS. REV.* (2013).

been hailed “the foundation of the modern information economy: it fuels the software, life sciences, and computer industries, and pervades most of the products we consume.”¹⁵ But as the scope of IP protection expands, the field has also become one of the most contested areas of policy. From music file sharing to broadcasting, from drugs for AIDS to patent trolls, “the intellectual property wars are on.”¹⁶

The fierce battles over the proper scope of IP law raise questions about the costs and benefits of controlling knowledge and the distributional effects of the current legal regime. IP rights are generally understood as a “carefully crafted bargain.”¹⁷ The bargain is quid pro quo: inputs to innovation are rewarded with exclusivity over certain outputs of innovation for a limited time. The prevailing consensus is that IP protections themselves are mostly harmful, but the incentive system they create is valuable. In other words, IP is a necessary evil: it promotes innovation by creating a temporary monopoly.¹⁸ The debates normally surround the scope of enclosure and the limits of this necessary evil.¹⁹ Increasingly, scholars believe that the contours of this bargain have exceeded their limits. A decade ago, a group of scholars and activists denounced “excessive, unbalanced, or poorly designed intellectual property protections” when they drafted an open letter to the Director General of the World Intellectual Property Organization.²⁰ The letter called for updated approaches to knowledge building and sharing. Since then, the quest to reach the right balance between public domain and intellectual property protections has

¹⁵ Nancy Gallini & Suzanne Scotchmer, *Intellectual Property: When is it the Best Incentive System?*, 2 INNOVATION POL’Y AND THE ECON. 51-78 (2002).

¹⁶ Gaia Bernstein, *In the Shadow of Innovation*, 31 CARDOZO L. REV. 2257 (2010). The Supreme Court has heard twelve cases relating to patents, copyrights, or trademarks over the past two terms alone. See e.g., *Am. Broad. Companies, Inc. v. Aereo, Inc.*, f/k/a *Bamboom Labs, Inc.*, 134 S. Ct. 2498 (2014); *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S.Ct. 2347 (2014); *Petrella v. Metro-Goldwyn-Mayer, Inc.*, 134 S. Ct. 1962 (2014); *Medtronic, Inc. v. Mirowski Family Ventures, LLC*, 134 S. Ct. 843 (2014); *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120 (2014); *Ass’n for Molecular Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107 (2013); *Already, LLC v. Nike, Inc.*, 133 S. Ct. 721 (2013).

¹⁷ *Dastar Corp. v. 20th Century Fox Film Corp.*, 539 U.S. 23, 33-34 (2003).

¹⁸ Mark A. Lemley, *Ex Ante Versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129, 131 (2004) (describing the standard account under which “intellectual property is a necessary evil”).

¹⁹ A growing but significant minority of commentators advocate against intellectual property as an unnecessary evil which ultimately reduces access and slows down progress in the arts and sciences. Michele Boldrin & David K. Levine, *AGAINST INTELLECTUAL MONOPOLY* (2008).

²⁰ Open Letter to WIPO, *Nature* 424, p.118, (Oct. 7, 2003).

only intensified. In March 2013, the central provisions of the American Invents Act, the first major patent law reform since 1952, went into effect.²¹ Currently, several major patent, trade secrets, and copyright reform bills are before Congress.²²

While the scope of intellectual property has triggered lively disputes and exchanges as well as intense ongoing efforts by legislatures and courts to strike the right balance, these debates have overshadowed a deeper expansion into the world of intangible goods. Under the radar, excessive, unbalanced, and poorly designed (to borrow the language of the WIPO letter) human capital controls have wildly expanded and are widespread in almost every industry.²³ And yet, strikingly, their expansion has been largely neglected in the IP wars. These contractual and regulatory constraints on the use of knowledge, skill, and information acquired during employment consist of (1) pre-innovation assignment agreements that go beyond the subjects and timeline that intellectual property deem commodifiable; (2) non-disclosure agreements and secrecy restrictions which span beyond traditionally defined secrets under trade secret law as well as the increased criminalization of secrecy infringement; (3) airtight non-compete agreements, post-employment career restrictions, including anti-solicitation and non-dealing clauses, and, most recently, meta-non-competes, anti-competitive labor market collusion through multi-lateral anti-poaching agreements. Each of these central mechanisms, vigorously employed by companies to propertize human capital, are subject to doctrinal

²¹ Leahy-Smith America Invents Act (AIA), Pub. L. No. 112-29, 125 Stat. 284 (2011).

²² For example, The Saving High-Tech Innovators from Egregious Legal Disputes Act of 2013 (SHIELD Act), H.R. 845, 113th Cong. (2013), is aimed at “stopping patent troll lawsuits.” Currently there are multiple bills before Congress aimed at strengthening trade secret protections, including, Deter Cyber Theft Act of 2014, S. 2384, 113th Cong. (2014), available at <https://www.govtrack.us/congress/bills/113/s2378>, which proposes to deter trade secrets theft in cyberspace, the Defend Trade Secrets Act of 2014 to provide Federal jurisdiction for theft of trade secrets, S. 2267, 113th Cong. (2014), available at <https://www.govtrack.us/congress/bills/113/s2267>, the Whitehouse-Graham Discussion Draft of July 29, 2013 to expand the scope of the EEA, available at <http://www.whitehouse.senate.gov/news/release/whitehouse-and-graham-working-to-crack-down-on-economic-espionage>, and the Private Right of Action Against Theft of Trade Secrets Act of 2013 to provide for civil actions. H.R. 2466, 113th Cong. (2013), available at <https://www.govtrack.us/congress/bills/113/hr2466>; Joshua Sibble, *International Trend Toward Strengthening Trade Secret Law*, INTELL. PROP. & TECH. L.J. (2014).

²³ Steven Greenhouse, *Noncompete Clauses Increasingly Pop Up in Array of Jobs*, N.Y. TIMES, June 2014.

rules and litigation, but have received surprisingly little attention as a field of law.

B. The Intangible Spectrum

1. Evan Brown's Abstract Solution: "*Whether Patentable or Non-Patentable*"

Eureka! The moment of discovery. The coveted flash of genius. Evan Brown, a computer programmer from Texas, claimed to have experienced such a flash while driving his Mercedes one sunny weekend. What had become clear to him was "the Solution," as court holdings later repeatedly referred to it with a capital 'S.'²⁴ For twenty years, he had been contemplating a computer program that would convert software written for obsolete systems into usable programs for newer computers. Then suddenly, at one fast-driving moment, everything came together in Brown's mind. The Solution that crystallized was a groundbreaking algorithm that would allow for the easy upgrading of computers, making older software compatible with newer hardware.

One major hurdle loomed over Brown's Eureka discovery. When the Solution became clear to him, Brown was working in the technical support department of the mega telecommunications company DSC/Alcatel USA. Even though Brown's Eureka moment happened on his day off, he had signed a contract granting his employer "full legal right, title and interest" in all of his inventions. Brown's contract required disclosure and transfer of all innovations made or conceived from his first day of employment with the company until his departure. When Brown refused to reveal his Solution to Alcatel, he was fired and then sued. Seven years of litigation ensued. Eventually, a Texas court ruled in favor of Alcatel holding that Brown's algorithms belonged to his former employer. Following the court order, Brown was forced to travel to Alcatel's offices for three months and write down hundreds of pages of computer code without pay.²⁵

Brown's story, although not particularly unique in its legal history, has become a symbol of the moral outrage felt by inventors who are required to hand over their ingenuity to their former corporate employers. Brown's battle attracted a great deal of publicity around the world, with

²⁴ *Brown v. Alcatel USA, Inc.*, 2004 Tex. App. LEXIS 5687 (2004); *petition for review denied*, *Brown v. Alcatel USA, Inc.*, 2004 Tex. LEXIS 945 (Oct. 8, 2004).

²⁵ Dan Michalski, *Street Talk: Who Owns Your Brain?* D MAGAZINE, June 2000.

titles like “Not a Penny for Your Thoughts” (*Wired*), “Calling Mr. Orwell” (*Time*), and “Another Case for the Thought Police” (*London Times*).²⁶ Even Scott Adams was inspired to create a Dilbert strip about the Brown experience, showing an employee required to “cough up his idea.”²⁷

And yet, Brown’s story is far from unique. Pre-invention assignment clauses are pervasive and standard across many industries and jobs.²⁸ While individual inventors develop the vast majority of patented inventions, more than 90% of the patents submitted to the U.S. patent office are submitted by corporations.²⁹ Why then has Brown’s battle struck such a chord with inventors all over the world? Perhaps because the Solution existed entirely in Evan Brown’s mind and was merely an intangible idea in incubation. Perhaps because from a temporal perspective, the Solution reflects the product of Brown’s life work, spanning a career that bookends his decade at Alcatel. Even more generally, the sense of wrong may come from the common practice of requiring employees to forfeit all future innovation through assignment agreements, effectively restricting them from later pursuing independent career paths, notwithstanding the fact that they were not hired to invent.

The Texas court viewed the case as a simple breach of contract and ordered Brown to hand over his idea.³⁰ The court ordered complete disclosure of the Solution to Brown’s ex-employer and refused to apply a reasonableness analysis to invalidate the assignment contract Brown had signed early on in his career at Alcatel. While the court deemed the case a matter of contract enforcement, in which the broad invention assignment clause gave the employer the power to demand any and all of Brown’s ideas, the media attention and public controversy point to the underlying complexities of such cases.

Brown claimed that his job had nothing to do with the Solution and even more acutely, the Solution had remained in its abstract stages throughout the dispute. The idea, while valuable, was incomplete and unwritten. The Solution never left Brown’s mind and it had no external

²⁶ See e.g., Jeff Nachtigal, *We Own What You Think*, SALON.COM, Aug. 18, 2004.

²⁷ LOBEL, *supra* note 1.

²⁸ David J. Brody, *Employee Invention Assignment Agreements: Issues in Getting Them Right*, HBSR WHITE PAPER, June 2011 (Employee invention assignment agreements are among the most common agreements that companies have).

²⁹ U.S. PATENT AND TRADEMARK OFFICE, REPORT (2012), PART A1.

³⁰ *Brown v. Alcatel USA*, *supra* note 24.

expression. Brown had not worked out the details of its operation and had not put it down in writing. At what point can a broad concept developed in the mind of one person be considered a material invention owned by another? Patent law gives us one answer: concepts that are only in their incubation stage and have not yet left the mind of the inventor cannot be propertized.

In patent law, information is patentable only after the information is reduced to practice, has utility, and is inventive.³¹ In several leading cases, the Supreme Court ruled that abstract ideas could not be patented because they are the fundamental building blocks of science and technology.³² In 2010, in *Bilski v. Kappos*, the Court held that a method for hedging risk of changing energy prices was too abstract a concept to be patentable. This line drawing continues with the recent Supreme Court case, *Alice Corp. v. CLS Bank International*, in which the Court unanimously decided that a computer-implemented method of mitigating risk in foreign currency transactions was too abstract to be patentable.³³ While the specifics of line drawing continue to challenge courts and patent scholars, the efforts to draw lines are uncontested: patents are not granted to abstract concepts. Similarly, copyright law protects expressions but not abstract ideas. The idea-expression dichotomy was developed early on by the courts, and later incorporated into the Copyright Act of 1976. Section 102(b) of the Act states: “[i]n no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated or embodied in such work.”³⁴ In other words, core IP law would not have protected Brown’s idea.

The abstract/concrete and idea/expression distinctions are the heart

³¹See U.S. Patent & Trademark Office, Manual of Patent Examining Procedure §2138.05 (2001), available at http://www.uspto.gov/web/offices/pac/mpep/documents/2100_2138_05.htm “Reduction to practice may be an actual reduction or a constructive reduction to practice which occurs when a patent application on the claimed invention is filed. The filing of a patent application serves as conception and constructive reduction to practice of the subject matter described in the application.” *Hyatt v. Boone*, 146 F.3d 1348, 1352 (Fed. Cir. 1998).

³²See also, Editorial, *Abstract Ideas Don’t Deserve Patents*, N.Y. TIMES, March 29, 2014, at SR10; On the challenges in drawing the lines between concrete and abstract patent claims, see also, Tun-Jen Chiang, *The Levels of Abstraction Problem in Patent Law*, 105 Nw. U. L. REV. 1097, 1122-24 (2011); Tun-Jen Chiang & Lawrence B. Solum, *The Interpretation-Construction Distinction in Patent Law*, 123 YALE L.J. 530-614 (2013).

³³ *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014).

³⁴ *Baker v. Selden*, 101 U.S. 99 (1879).

of the bargain struck in intellectual property. While fine-tuning these lines remains a highly contested and frequently litigated affair, the principle that these lines ought to be policed remains strong in both copyright and patent law. And yet, when we shift our gaze from the traditional pillars of IP to contractual extensions, we uncover a completely different picture. Thus, coercing disclosure pursuant to human capital contracts at such an early stage of innovation appears technically premature, legally contradictory, and ethically harsh. Pragmatically, and indeed, cynically, the legal result leads to the conclusion that Brown would have been better off quitting and pursuing the development of his idea on his own, rather than revealing the fact that he had an idea. Consequently and perversely, transferring ownership of fledgling and individually conceived innovation impedes the move from conception to a full blueprint by disincentivizing the very person who possesses the foundational ingredients.

2. Carter Bryant's Concept: "*Whether Copyrightable or Non-Copyrightable*"

Like Evan Brown, Carter Bryant had signed an agreement assigning all his concepts and know-how to his employer, Mattel. Bryant's employment agreement provided:

I agree to communicate to the Company as promptly and fully as practicable all *inventions* (as defined below) conceived or reduced to practice by me (alone or jointly by others) at any time during my employment by the Company. I hereby assign to the Company.... all my right, title and interest in such inventions, and all my right, title and interest in any patents, copyrights, patent applications or copyright applications based thereon.³⁵

The contract defined the term 'inventions' to include, "but is not limited to":

All discoveries, improvements, processes, developments, designs, know-how, data computer programs and formulae, *whether patentable or unpatentable.*" (emphasis added).

Bryant worked as a fashion and hairstyle designer for high-end

³⁵ Mattel, Inc. v. MGA Entm't, Inc., 616 F.3d 904, 909 (9th Cir. 2010).

Barbie dolls at Mattel for seven years. He had an idea for a set of multi-ethnic, trendier dolls— Zoe, Lupe, Halide, and Jade, who eventually made it to market as Cloe, Yasmin, Sasha and Jade: the first generation of Bratz dolls. While still at Mattel, Bryant made the initial doll designs out of pieces he found in the Mattel recycling bins: a Barbie body and Ken’s boots.

Bryant pitched the idea of Bratz to MGA Entertainment in 2000 and immediately thereafter left Mattel to work full-time on the development of Bratz. A year later, MGA introduced Bratz to the toy market. Launching a \$2 billion lawsuit and decade-long litigation, Mattel sued MGA for ownership over the Bratz empire, claiming that since Bryant had signed an agreement under which he assigned all his creative ideas and innovations to his then-employer and created the doll while still a Mattel employee, the doll line, copyright, and trademark, and thereby all profits from its sales belonged to Mattel.³⁶

In the first jury trial, the court interpreted Bryant's employment agreement as effectively assigning all possible ideas to Mattel. The court instructed the jury to merely decide *which* ideas Bryant came up with during his time with Mattel. The trial court thereafter imposed a constructive trust over all Bratz-related trademarks and awarded Mattel \$100 million stemming from the breach of Bryant’s contract.³⁷

On appeal, Judge Kozinski turned to conventional contract interpretation in an attempt to determine whether ideas, regardless of their patentability or copyrightability, were included in the pre-invention assignment agreements. He noted the lack of the word “ideas” in the contract itself. But he also noted the emphasis in the contract that the list was not meant to be finite. Judge Kozinski thereafter compared the other categories listed against the term *ideas*:

Designs, processes, computer programs and formulae are concrete, unlike ideas, which are ephemeral and often reflect bursts of inspiration that exist only in the mind. On the other hand, the agreement also lists less tangible inventions such as “know-how”

³⁶ Reuters, *Jury Rules for Mattel in Bratz Doll Case*, N.Y. TIMES, July 18, 2008.

³⁷ Gillian Flaccus, *Mattel Awarded \$100M in Bratz Dolls Copyright Case*, USA TODAY, August 27, 2008, available at http://www.usatoday.com/money/industries/retail/2008-08-26-mattel-bratz-dolls_N.htm.

and “discoveries.”³⁸

Judge Kozinski further inquired on the right method to interpret the contract by emphasizing the contractual word “conceived,” which he interpreted as suggesting “Bryant may have conveyed rights in innovations that were not embodied in a tangible form by assigning inventions he “conceived” as well as those he reduced to practice.”³⁹ Judge Kozinski sent these inquiries back for a second jury trial that would look into the contract interpretation more carefully. In other words, Judge Kozinski, in overturning the first jury trial, supported a better-drafted contract that could fence up all ideas, abstract and ephemeral.

Strikingly, in the very same decision, Judge Kozinski warned about the chilling effect of overly broad copyright protection. As we have come to expect from the Judge’s significant lineage of intellectual property holdings,⁴⁰ Judge Kozinski was well aware of the threat that strong controls over information pose to innovation and creativity. When he turned to the actual drawings of the Bratz dolls that Bryant had sketched and sold to MGA, he emphasized the idea/expression distinction at the core of copyright law:

Degas can't prohibit other artists from painting ballerinas, and Charlene Harris can't stop Stephanie Meyer from publishing *Twilight* just because Sookie came first. Similarly, MGA was free to look at Bryant's sketches and say, “Good idea! We want to create bratty dolls too.”⁴¹

And yet, the same decision gives a well-drafted contract the power to pre-assign far more than what is, as expressly stated in the contract, patentable or copyrightable.

This gap between the scope of intellectual property and the scope of contractual pre-innovation assignment is illuminating. Like Evan Brown, Carter Bryant had an idea for a different product in his respective industry. Brown’s idea was patentable only once it became more than an abstract idea

³⁸ *Mattel, Inc. v. MGA Entm't, Inc.*, 616 F.3d 904, 909 (9th Cir. 2010).

³⁹ *Id.*

⁴⁰ *White v. Samsung Electronics America, Inc.*, 989 F.2d 1512, 1512 (9th Cir. 1993) (Judge Kozinski’s much quoted statement that “overprotecting intellectual property is as harmful as underprotecting it”).

⁴¹ *Mattel, Inc. v. MGA Entm't, Inc.*, 616 F.3d 904, 913 (9th Cir. 2010).

solely in his mind, while Bryant's idea, a new product line, was copyrightable only once it was penned and drawn on paper, and even then, only the expression, not the concept and idea, were protected by copyright law.

The explicit subversion of the lines drawn in patent and copyright law in the drafting of assignment agreements is increasingly standard. Google, for example, requires its employees to sign an assignment agreement that defines "inventions" to include, "inventions, designs, developments, ideas, concepts, techniques, devices, discoveries, formulae, processes, improvements, writings, records, original works of authorship, trademarks, trade secrets, all related know-how, and any other intellectual property, *whether or not patentable or registrable under patent, copyright, or similar laws.*"⁴² Both the patent assignment dispute over Evan Brown's algorithm and the copyright dispute over Carter's concept of Bratz illustrate the way the bargain struck in intellectual property law has been subverted in human capital law. The standard human capital agreements create a new form of cognitive property, commodifying and assigning ownership over abstract ideas that would otherwise be deemed part of the public domain.

3. Sergey Aleynikov's Crime: Secrecy Hysteria as a Control Device

Why exploit the ignorance of both the general public and the legal system about complex financial matters to punish this one little guy?
Why must the spider always eat the fly? – Michael Lewis

Sergey Alyenikov was a star programmer at Goldman Sachs. A month after leaving Goldman Sachs to work for a new company, Teza Technologies, he was arrested by the FBI, and later prosecuted and convicted under the Economic Espionage Act for stealing proprietary technology. He was sentenced to eight years in federal prison. Goldman had accused Alyenikov of stealing computer code and sending himself 32 megabytes of source code. Immediately upon discovering the downloads, Goldman notified the FBI which promptly sent agents to arrest Alyenikov.

Alyenikov worked as a programmer for Goldman's high frequency trading platform where he, like other programmers, used open source

⁴² Google Inc., AT-WILL EMPLOYMENT, CONFIDENTIAL INFORMATION, INVENTION ASSIGNMENT AND ARBITRATION AGREEMENT, on file with author, *Eff. Date Mar. 2014 CA Version*.

software on a daily basis. Unlike the frequently practiced requirement of putting open source code back to the common pool after use and modification, Goldman had a one-way attitude about open-source. When Goldman programmers took open source, it became Goldman's proprietary information. Goldman would not return the adjusted code to public domain, likely in violation of the open-source licensing agreements. Journalist Michael Lewis, who investigated this case, described Alyenikov's experience at Goldman, where he used open-source components to program new solutions.⁴³ Alyenikov asked his boss if he could release the repackaged open-source back on the Internet. His boss told him it was now Goldman's property.⁴⁴ As Lewis described:

Open source was an idea that depended on collaboration and sharing, and Serge (Alyenikov) had a long history of contributing to it. He didn't fully understand how Goldman could think it was O.K. to benefit so greatly from the work of others and then behave so selfishly toward them. "You don't create intellectual property," Alyenikov said. "You create a program that does something."⁴⁵

The core logic of the open source initiative is that rewriting code from scratch for every new program is an utter waste of time, analogous to recreating mathematical proofs rather than using a calculator in every market transaction.⁴⁶ During Alyenikov's trial, his attorney presented evidence of identical pages of computer code: one marked with open-source license and the other a Goldman's copy, with the open-source license removed and replaced with a Goldman Sachs logo.

When Alyenikov quit his position at Goldman he agreed to remain in his position for six more weeks to help train others at Goldman and teach them what he knew. During that time, he mailed himself source code he had been working on that contained large amounts of the open-source code he had been using for two years intertwined with code he developed at Goldman. His claim at trial was that he sent this code to himself because he hoped to later disentangle the two and have the open source available if he needed a reminder of what he had used.

⁴³ Michael Lewis, *Did Goldman Sachs Overstep in Criminally Charging Its Ex-Programmer?*, VANITY FAIR, Sept. 2013.

⁴⁴ *Id.*

⁴⁵ *Id.*

⁴⁶ Joel Spolsky, *Things You Should Never Do, Part I*, JOEL ON SOFTWARE, (Apr. 6, 2000), <http://www.joelonsoftware.com/articles/fog0000000069.html> (last visited May 14, 2014).

There is no doubt that Alyenikov broke Goldman Sachs' rules. There is also no doubt that employees are generally required to not divulge a company's secrets.⁴⁷ The claim here is that trade secret law, like other areas of intellectual property, is a bargain between encouraging investment in innovation by protecting certain information and stimulating market competition by ensuring the use and dissemination of other information. Traditionally then, trade secret law, like other forms of IP, has boundaries: information deemed trade secret must be confidential, not generally known in the industry, it must be valuable, and the company must exert reasonable efforts in maintaining its secrecy.⁴⁸ And yet, while trade secret law like other pillars of IP is designed to promote innovation, it functions to regulate the relationship between firms and individuals.⁴⁹

Using the lens of human capital, contemporary trade secrets have expanded both in *subject matter*, the type of information that can be deemed trade secret, and *protection*, the type of activities that are deemed misappropriation. The *Alyenikov* case illuminates both these trends toward cognitive property through recent developments in trade secret law, raising doubt about whether the original bargain struck in trade secrecy has been abandoned. In several ways, the case points to unbalanced controls over information beyond the actual secrecy of the information at stake. First, the evidence in the case pointed to the little value that the source code would have for anyone outside of Goldman. While Goldman's system was an archaic patchwork, newer and faster systems were designed differently.⁵⁰ Second, there was no actual use of the information taken. The only evidence presented in the case was testimony by Alyenikov's new employer that he had absolutely no interest or use of the code. Rather, the new employer wanted to build something from scratch and testified that even if he were offered Goldman's entire high-frequency-trading platform he would not have been interested.⁵¹ Third, much of the code was open source code that Alyenikov had taken from the Internet. He insisted convincingly to the

⁴⁷ See generally, Orly Lobel, *Intellectual Property and Restrictive Covenants*, in ELGAR ENCYCLOPEDIA OF EMPLOY'T L. AND ECON. (Dau-Schmidt, Harris & Lobel eds. 2009).

⁴⁸ Mark A. Lemley, *The Surprising Virtues of Treating Trade Secrets as Intellectual Property Rights*, 61 STAN. L. REV. 311 (2008).

⁴⁹ Madhavi Sunder, *Trade Secrets and Human Freedom*, in INTELLECTUAL PROP. AND THE COMMON LAW (Cambridge University Press 2013).

⁵⁰ Lewis, *supra* note 43.

⁵¹ Michael Lewis, *Did Goldman Sachs Overstep in Criminally Charging Its Ex-Programmer?*, VANITY FAIR, Sept. 2013.

panel of experts who examined the evidence post-trial that he took the code for those elements. For programmers like Alyenikov, the code is analogous to the pocketbook inventors used to carry around everywhere. One of the experts considering the evidence post-conviction explained:

In Serge's case, think of being at a company for three years and you carry a spiral notebook and write everything down. Everything about your meetings, your ideas, products, sales, client meetings—it's all written down in that notebook. You leave for your new job and take the notebook with you (as most people do). The contents of your notebook relate to your history at the prior company, but have very little relevance to your new job. You may never look at it again. Maybe there are some ideas or templates or thoughts you can draw on. But that notebook is related to your prior job, and you will start a new notebook at your new job which will make the old one irrelevant. . . . [It enables them] to remember what they worked on—but it has very little relevance to what they will build next.⁵²

Fourth, the manner in which Alyenikov downloaded the code was not of an inconspicuous thief as he emailed it to himself from work when he could have easily downloaded the information onto a thumb drive. Fifth, perhaps most compelling, Alyenikov took very little, "eight megabytes in a platform that consisted of an estimated one gigabyte of code" and nothing of true value, namely Goldman's trading strategies – the secret sauce ("But that's like stealing the jewelry box without the jewels," said one of the post-trial experts). Sixth, procedurally, these questions were tried in the absence of actual expertise about the nature of the information and the allegations of its value.⁵³ Both the FBI investigators who arrested Alyenikov and the jury who convicted him seemed to have little grasp of the world of high frequency trading and its trade secrets. Finally, the harsh consequences: the

⁵² The expert contrasted these actions with real theft: "If Person A steals a bike from Person B, then Person A is riding a bike to school, and Person B is walking. A is better off at the expense of B. That is clear-cut and most people's view of theft." *Id.*

⁵³ The one outside expert witness in the trial called by the government turned out to be rather a non-expert, "about the market itself he was badly misinformed. (He described Goldman Sachs as "the New York Yankees" of high frequency trading.) He turned out to have testified as an expert witness in an earlier trial involving the theft of high-frequency-trading code, after which the judge had described what he'd said as 'utter baloney.'" Lewis, VANITY FAIR, *supra* note 43. The jury was composed of high-school graduates without computer background or experience. "They would bring my computer into the courtroom," recalls Serge incredulously. "They would pull out the hard drive and show it to the jury. As evidence... During the trial, the jury appeared to be sleeping." *Id.*

eight-year imprisonment of a former programmer, a father of three with no criminal record, for the act, common among programmers, of emailing his work to himself.

In his new book, *Flash Boys*, Michael Lewis attempted to understand why Goldman fought pugnaciously under such non-threatening circumstances to make sure that a former star programmer would be sentenced to jail. Lewis asked,

Why on earth call the F.B.I.? Why coach your employees to say what they need to say on a witness stand to maximize the possibility of sending him to prison?⁵⁴

The best explanation Lewis finds is that Goldman had to send a message to shareholders, competitors, and employees that their code is original and genius. If anyone discovered that 95 percent of it is open-source, it would kill Goldman's reputation and the high bonuses of Goldman traders might suddenly seem less justifiable.

A year into his imprisonment, the Second Circuit Court of Appeals reluctantly overturned Aleynikov's sentence on a technicality.⁵⁵ The court found that the two statutes used for his conviction had loopholes.⁵⁶ The National Stolen Property Act (NSPA) was written to cover only "goods,

⁵⁴ Lewis, *supra* note 51.

⁵⁵ A few months after Aleynikov's appeal, in August 2013, the Second Circuit affirmed the criminal conviction of Samarth Agrawal for violating both the National Stolen Property Act (NSPA) and the Economic Espionage Act (EEA) in a very similar case, where the employee was found to have misappropriated high-frequency trading code at the time he was leaving the company. The difference was that unlike Aleynikov, Agrawal printed SocGen's code on paper, making his theft tangible. According to the Second Circuit, "[t]his makes all the difference" under the Economic Espionage Act, before the Act was amended on December 28, 2012. Although the Court found that the cases were identical in "moral culpability," it stated, "it is Congress's task, not the courts', to define crimes and prescribe punishments." See also, Jennifer L. Achilles & Lina Zhou, *Virtually Identical Trade Secret Theft Cases Result In Opposite Conclusions: Lessons From The Second Circuit's Attention to Detail*, Mondaq, Aug. 8, 2013.

⁵⁶ Aleynikov is still being charged in New York state court for unlawful use of secret scientific material and unlawful duplication of computer related material, facing a four-year prison sentence. He is currently on bail. Aleynikov challenged the charges on double jeopardy grounds; the judge found that the charges were different and that the federal charges were dismissed based on the inadequacy of the indictment, and not the evidence, therefore not double jeopardy. More recently, Aleynikov filed a complaint in September 2012, seeking costs for his legal fees as a former corporate officer. The fees amount to more than \$2.4 million. Aleynikov recently scored a major victory. A court declared that his initial arrest was illegal and that the prosecution could not use the evidence gathered from the arrest and subsequent searches. Ben Protess, *Judge Blocks Evidence in Goldman Code Theft Case*, N.Y. TIMES DEALBOOK, June 20, 2014.

wares, merchandise, securities or money,” not intangible goods, while the Economic Espionage Act (EEA) covered the misappropriation of trade secrets that were designed to enter into inter-state commerce. Since Aleynikov did not remove anything physically out of Goldman’s offices, the NSPA did not apply. Because Goldman’s code was used internally and not for sale, the court ruled that it did not meet the EEA’s interstate commerce requirement.⁵⁷

In his concurring opinion, Judge Calabresi called Congress to amend the EEA to cover the kind of information Aleynikov downloaded. Congress quickly reacted and closed the gap with a bipartisan vote and in late December 2012, President Barack Obama signed the reform into law.⁵⁸ The Act added the word “service” in addition to “product” such that it would include secrets used internally but that relate to activities, like high frequency trading, that involve interstate commerce. A month later, President Obama signed the Foreign and Economic Espionage Penalty Enhancement Act, which enhances the penalties under the Economic Espionage Act.⁵⁹ Meanwhile, the Aleynikov case has been transferred to New York state prosecutors and Aleynikov is currently being criminally charged under state trade secret law, for the “unlawful use of secret scientific material” and “unlawful duplication of computer related material,” based on a signed complaint by the same federal agent who led the investigation of the federal prosecution.⁶⁰

The criminalization of trade secret law is particularly disturbing when understood in the context of the expansion of trade secret subject matter. The EEA defines trade secrets very broadly to include, “all forms and types of financial, business, scientific, technical, economic, or engineering information, including patterns, plans, compilations, program devices, formulas, designs, prototypes, methods, techniques, processes, procedures, programs, or codes, whether tangible or intangible, and whether or how stored, compiled, or memorialized physically, electronically, graphically, photographically.”⁶¹

⁵⁷ *United States v. Aleynikov*, 785 F. Supp. 2d 46, 52 (S.D.N.Y. 2011) *rev'd*, 476 F. App'x 473 (2d Cir. 2012).

⁵⁸ Theft of Trade Secrets Clarification Act of 2012, Pub. L. 112-236, 126 Stat. 1627 (Dec. 28, 2012).

⁵⁹ Economic Espionage Penalty Enhancement Act of 2012, Pub. L. 112-269, 126 Stat. 242 (Jan. 14, 2013).

⁶⁰ Ben Protess, *Judge Blocks Evidence in Goldman Code Theft Case*, NYT June 20 2014.

⁶¹ Economic Espionage Act of 1996 (EEA), Pub. L. No. 104-294, 110 Stat. 3488 (Oct. 11, 1996) codified at 18 U.S.C. §§ 1831-39 (passed as part of the National Information

Under the Uniform Trade Secrets Act, adopted by most states, the definition of a trade secret is also very broad.⁶² Just as the scope of copyright and patent subject matter expands through human capital law, the type of information that is deemed secret in contemporary employment disputes frequently extends beyond what the Uniform Trade Secret Act defines as a trade secret. Courts regularly accept the theory that under an employee's duty of loyalty, information can be "confidential" or "proprietary" even if not a trade secret.⁶³ Contractually, it has become standard to include broad and open-ended lists of confidential information that goes beyond the statutory definition of trade secrets. Take for example Google's definition of confidential information in the standard contract new recruits are required to sign:

Google Confidential Information means, without limitation, any information in any form that relates to Google or Google's business and that is not generally known. Examples include Google's non-public information that relates to its actual or anticipated business, products or services, research, development, technical data, customers, customer lists, markets, software, hardware, finances, employee data and evaluation, trade secrets or know-how, intellectual property rights, including but not limited to, Assigned Inventions (as defined below), unpublished or pending patent applications and all related patent rights, and user data (i.e., any information directly or indirectly collected by Google from users of its services). Google Confidential Information also includes any information of third parties (e.g., Google's advertisers, collaborators, subscribers, customers, suppliers, partners, vendors, partners, licensees or licensors) that was provided to Google on a confidential basis.⁶⁴

The contract then states that "all Google Confidential Information that I use or generate in connection with my employment belongs to Google." While some jurisdictions have stated clearly that if information is

Infrastructure Protection Act of 1996).

⁶² Charles Tait Graves, *Nonpublic Information and California Tort Law: A Proposal for Harmonizing California's Employee Mobility and Intellectual Property Regimes Under the Uniform Trade Secrets Act*, UCLA J. L. & TECH., Spring 2006, at 1.

⁶³ Charles Tait Graves & Elizabeth Tippett, *UTSA Preemption and the Public Domain: How Courts Have Overlooked Patent Preemption of State Law Claims Alleging Employee Wrongdoing*, 65 RUTGERS L. REV. 59 (2012).

⁶⁴ Google Employment Contract on file with author.

not a trade secret under the state trade secret statute, the employer can have no legal interest in prohibiting its use,⁶⁵ other states allow protection of information beyond what the law deems a trade secret, including information that is public.⁶⁶ The Seventh Circuit, for example, stated that “it is unimaginable that someone who steals property, business opportunities, and the labor of the firm's staff would get a free pass just because none of what he filched is a trade secret...An assertion of trade secret in a customer list does not wipe out claims of theft, fraud, and breach of the duty of loyalty that would be sound even if the customer list were a public record.”⁶⁷ Another court explained that “to the extent [a former employee] disclosed confidential information to Defendants and that information was not a “trade secret,” Plaintiffs are entitled to seek redress for Defendants' tortious interference with [former employee's] confidentiality contracts.”⁶⁸

The web of statutes and contractual definitions made available for employers to claim secrecy has meant that confidential information becomes a catch all category under human capital law, asserting ownership not merely over concrete information but also knowledge that has had not traditionally been commodified. Coupled with the increased criminalization of the misappropriation of such knowledge, cognitive controls become airtight. While the EEA was intended primarily to fight international post-cold war espionage,⁶⁹ in practice the criminal provisions have targeted mostly domestic trade secret misappropriation.⁷⁰ The vast majority of these

⁶⁵ Hauck Mfg. Co. v. Astec Indus., Inc., 375 F. Supp. 2d 649, 657 (E.D. Tenn. 2004); Diamond Power Int'l, Inc. v. Davidson, 540 F. Supp. 2d 1322, 1345 (N.D. Ga. 2007).

⁶⁶ Firetrace USA, LLC v. Jesclard, 800 F. Supp. 2d 1042, 1046–1050 (D. Ariz. 2010), appeal dismissed, 459 Fed. Appx. 906 (Fed. Cir. 2011); Chinet et al., Cal. Practice Guide: Employment Litigation (The Rutter Group 2007) ¶ 14:455, p. 14-50 (“It is not settled whether a former employee's use of a former employer's confidential information that is not protected as a trade secret constitutes unfair competition.”).

⁶⁷ Hecny Transp., Inc. v. Chu, 430 F.3d 402, 404 (7th Cir. 2005).

⁶⁸ Dow Corning Corp. v. Jie Xiao, No. 11-10008-BC, 2011 WL 2015517, at *14 (E.D. Mich. May 20, 2011).

⁶⁹ See e.g., United States v. Hsu, 155 F.3d 189, 194 (3d Cir. 1998) (“The end of the Cold War sent government spies scurrying to the private sector to perform illicit work for businesses and corporations”).

⁷⁰ Mark Halligan, *Reported Criminal Arrests and Convictions Under the Economic Espionage Act of 1996*, <http://my.execpc.com/~mhalign/indict.html> (last visited June 1, 2014); Peter J. Toren, *A Look at 16 Years Of EEA Prosecutions*, Law360: A LexisNexis Company, Sep. 19, 2012. Out of over 120 criminal prosecutions under the Act only about 10 were brought against foreign offenders. The large majority of prosecutions under the statute have been brought under Section 1832, which criminalized the misappropriation of trade secrets by domestic (non-foreign) offenders.

prosecutions have been brought against insiders, usually employees, seeking to leave their employer.⁷¹ As the *Aleynikov* case demonstrates, the act of misappropriation under the EEA covers broad activities, including attempts with no actual harm.⁷² As a result, the statute covers the types of activities employees routinely engage in throughout their careers such as memorization of information and the disclosure of insider knowledge post-employment.⁷³ Many routine behaviors among workers are now criminalized. For example, according to one recent survey, sixty-two percent of employees think it is acceptable to transfer corporate data to their personal computers, tablets, smartphones and cloud file-sharing apps.⁷⁴ And yet, even routine self-storage and data backing risk qualifying as misappropriation under the EEA. Rochelle Dreyfuss described the 1996 enactment of the EEA as “drastically chang[ing] the bargain between the public and the rights holder” and would likely stifle innovation though she remained hopeful that the Act would be employed with great caution.⁷⁵ Almost two decades later, the Act has been strengthened both in subject matter and in its criminal penalties and has expanded its reach beyond intellectual property to cognitive property.

B. The Timeline: Back to the Future

⁷¹ Michael L. Rustad, *The Negligent Enablement of Trade Secret Misappropriation*, 22 SANTA CLARA COMPUTER & HIGH TECH. L. J. 455, 458 (2006). During the early years of the statutes, Attorneys General normally only prosecuted after a process of private investigation by the corporation. *Id.* Currently, it appears that the Department of Justice is playing a more active role in initiating such investigations.

⁷² The Act criminalizes anyone who “without authorization copies, duplicates, sketches, draws, photographs, downloads, uploads, alters, destroys, photocopies, replicates, transmits, delivers, sends, mails, communicates, or conveys [trade secrets].” 18 U.S.C. A. § 1832 (West).

⁷³ Gerald J. Mossingoff et al., *The Economic Espionage Act: A New Federal Regime of Trade Secret Protection*, 79 J. PAT. & TRADEMARK OFF. SOC’Y 191, 192 (1997).

⁷⁴ Robert Hamilton, *Information Unleashed: The “Frenemy” Within—Insider Theft of Intellectual Property*, SYMANTEC OFFICIAL BLOG, Feb. 6, 2013, http://www.symantec.com/connect/blogs/frenemy-within-insider-theft-intellectual-property?om_ext_cid=biz_socmed_twitter_facebook_marketwire_linkedin_2013Feb_worldwide_InsiderThreat.

⁷⁵ See Rochelle Cooper Dreyfuss, *Trade Secrets: How Well Should We Be Allowed to Hide Them? The Economic Espionage Act of 1996*, 9 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. (1998). In the first years, Attorney General Janet Reno stated that any prosecution under the EEA will require her personal approval. Dreyfuss, *id.* See also, Joseph F. Savage, Jr., *The New Economic Espionage Act can be Risky Business*, 12 CRIM. JUST. 12, 15 (Fall 1997).

1. Before: Pre-Innovation Assignments

Businesses increasingly seek to expand their control over the time of innovation through broad invention assignment contracts. Today, it is common for the employee-inventor to agree in advance to assign her rights of any future innovation to the employer.⁷⁶ Both the Evan Brown/Alcatel and the Bratz/Barbie disputes involved contractual claims of ownership over innovation even before the ideas made their debut inside the innovator's mind.

If one looks only at intellectual property law on the books, innovation rights are granted to authors and inventors. The U.S. Constitution names “authors and inventors” as the beneficiaries of intellectual property rights. Both patent law and copyright law establish, in reasonably clear terms, that ownership, as a default, is vested to the author of an invention or creative expression. The Supreme Court has repeatedly explained that intellectual property is affixed to the belief that the “encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors.”⁷⁷ The exception that swallows the rule is at the nexus of IP, employment, and contract law. Corporations cannot author a patent, but they can nonetheless become patent owners. Similarly, corporations do not write poems or paint, but they can certainly become copyright owners. In developing the common law of patent ownership, courts adopted the hired-to-invent doctrine, under which inventions created as part of the job for which an employee was hired belong to the employer.⁷⁸ In copyright law, the work-for-hire doctrine was codified into the Copyright Act, shifting the definition of “authorship,” in the context of employment, from the employee to the employer that commissions the work.⁷⁹ These doctrines in both patent law and copyright law leave the default ownership with the employee for any innovation that has not been commissioned as part of the job.

⁷⁶ Since the 1990s, and ever increasingly, assignment agreements are required in nearly every position. Ann Bartow, *Inventors of the World, Unite! A Call for Collective Action by Employee-Inventors*, 37 SANTA CLARA L. REV. 673 (1997).

⁷⁷ *Mazer v. Stein*, 347 U.S. 201, 219 (1954).

⁷⁸ *Solomons v. United States*, 137 U.S. 342, 346 (1890).

⁷⁹ With regard to copyright, Section 101 of the Copyright Act defines a “work made for hire” as “a work prepared by an employee within the scope of his or her employment.” The landmark victory for freelancer writers was *Tasini v. New York Times, Co.*, 206 F.3d 161 (2d Cir. 1999) – but again, this was per the default that as freelancers, they owned the copyright, but that loophole can be closed by contractual invention/creation assignment that freelancers now sign too.

The real devil is in contract law. Even though the legal defaults in IP law leave most innovation as employee-owned – only patentable inventions and copyrightable works that were the purpose of the employee’s work are employer-owned – a default is just that: the default rule can be reversed by contract. In the contemporary economy, businesses routinely require pre-innovation assignment contracts in which employees cede all rights to future inventions. Many companies, upon hiring, demand the signing of such innovation clauses of all employees, from the low-level manufacturing employees to design engineers and creative workers.⁸⁰ Most often, for a comprehensive pre-innovation assignment of all creative and inventive prospects, employees receive no other remuneration outside of their monthly salary.⁸¹

At times, future-looking pre-innovation assignment agreements reach back to an employee’s past. Evan Brown began translating computer programs from one system to another while he was an undergraduate student at Texas A&M University, almost two decades before starting to work at Alcatel. Brown claimed to have conceived of the basic idea for the conversion algorithm almost ten years earlier. During those early years, Brown wrote computer conversion programs for several different companies and began the creative process of thinking about his solution. Similarly, Carter Bryant created designs of angelic looking fantasy girls since his childhood, long before joining Mattel. Indeed, during the trial, his attorneys presented substantial amounts of his early drawings from his high

⁸⁰Peter Caldwell, *Employment Agreements for the Inventing Worker: A Proposal For Reforming Trailer Clause Enforceability Guidelines*, 13 J. INTELL. PROP. L. 279 (2005-2006).

⁸¹ Orly Lobel, *My Idea, My Boss’s Property*, N.Y. TIMES, Apr. 13, 2014; Steven Chermansky, *A Penny for Their Thoughts: Employee-Inventors, Preinvention Assignment Agreements, Property, and Personhood*, 81 CALIF. L. REV. 597 (1993). It is worth noting that the American system of uncompensated contractual cognitive assignment is an exception among highly innovative countries. In the United States, private employers have no affirmative duty to compensate employees for profits derived from their inventions. By contrast, other countries with high patent competitiveness legally require businesses to pay fair compensation to the inventor who assigns an invention to them. Germany United Kingdom, France, Finland and Sweden all require fair compensation to the employee for any assigned invention. Roland Kirstein & Birgit Will, *Efficient Compensation for Employees Compensation*, 21 EUR. J.L. ECON. 1, 129-148 (2006); *Ian Shanks v. Unilever* EWHC 1647 (England & Wales High Court of Justice, Patents Court) (2014). China and Japan similarly guarantees employee-inventors a reward for assigned work. Vai Io Lo, *Employee Inventions and Works for Hire in Japan*, 16 TEMP. INT’L & COMP. L.J. 279, 306 (2002).

school and college years, including submissions to art competitions in his teens. In another recent case, an employee of Marathon Oil, Yale Preston, signed an assignment agreement that provided for the assignment of inventions “made or conceived” during employment. Preston claimed he came up with the idea for his invention before his employment began, but the Federal Circuit held that regardless of when it was “conceived,” the invention had been first “made,” that is developed, during his employment and thus should belong to the company.⁸² Moreover, the court found that Preston’s belief that his invention rights were protected because he had conceived of the invention before signing the contract was irrelevant.

The temporal reach of corporate ownership does not only occur by individual contract, but through institutional policy, such as a company handbook or an employee manual. Petr Taborsky was an undergraduate science student at the University of South Florida when he discovered a method to turn cat litter into a reusable human waste-cleaning device.⁸³ Although Taborsky had not signed an assignment agreement or any other employment agreement, the court deemed that he stole his own research because it was, by virtue of university policy, the property of the university. The project began with a small grant from a Florida utility company, Florida Progress Corp. The project was initially scheduled to end before Taborsky made his discovery, but Taborsky received permission to continue the research as part of his Master’s thesis. When he made the discovery, both the university and the utility company claimed the invention as their own.

Taborsky, convinced the discovery was his to own, filed for a patent. He also held on to his handwritten lab notebooks which became the center of the lawsuit, eventually leading to Taborsky’s imprisonment. After a court determined that the university owned Taborsky’s research, the notebooks were also deemed the property of the University of South Florida. Therefore, Taborsky was charged for their theft (self-theft perhaps would be the correct term).

Taborsky’s refusal to comply with the order to transfer ownership of his patent and hand over his notebooks resulted in his imprisonment in a maximum-security state prison. When offered clemency by then Florida Governor Lawton Chiles, Taborsky declined, explaining that accepting would be tantamount to admitting guilt:

⁸²Preston v. Marathon Oil Company, 684 F.3d 1276 (Fed. Cir. 2012).

⁸³Taborsky v. Florida, 659 So. 2d 1112 (Fla. Dist. Ct. App. 1995).

When you think about going to jail, it's so terrifying I couldn't get out of bed in the morning. But at some point I made the decision I wasn't going to let them use the criminal court to get something they weren't entitled to.

The 2011 Supreme Court case *Stanford v. Roche* further solidified the contemporary realities of future innovation assignment agreements, which preemptively strip away all rights and claims in one's innovation. In this case, two institutions, Stanford University and the biotech corporation Cetus, disputed over the ownership of a patent. The dispute arose from the wording of two competing agreements that scientist Mark Holodniy had signed, each assigning future innovation. In the backdrop of the new cognitive property, it should not be surprising that the dispute over invention ownership in this case was between two institutions, Cetus and Stanford, while the inventor had long been stripped of any claims to his invention. The key issue in the case was the interpretation of the phrase "do hereby assign" which is commonly used in employment pre-invention assignment agreements. The Supreme Court affirmed the Court of Appeals construction of the phrase "do hereby assign" for future patent rights used by Cetus as taking effect immediately, thereby trumping Stanford's "I agree to assign" clause, which the Court interpreted to be a promise of future action.⁸⁴

The "automatic assignment" adopted by the Supreme Court has meant that an employment/assignment agreement signed at the beginning of employment automatically transfers title to the employer, with no further act of transfer required, once those inventions are conceived and come into existence. These agreements often lead to the transfer of title of inventions conceived or created years after the inventor started work with the company. The automatic assignment rule runs contrary to long-understood maxims of equity, which have held that assignment of future, not-yet-in-existence goods creates a contractual right, not the actual assignment itself:

Thus, until the property comes into existence, the assignee "has nothing but the contingency, which is a very different thing from the right immediately to recover and enjoy the property. It is not an interest in property; but a mere right under the contract...for in the contemplation of Equity, it amounts, not to an assignment of a present interest, but only to a contract to assign when the interest becomes vested."⁸⁵

Similarly, in tension with the current interpretation of pre-invention

⁸⁴ Bd. of Trs. of Leland Stanford Jr. Univ. v. Roche Molecular Sys., Inc., 131 S. Ct. 2188, 2199 & 2203 (2011).

⁸⁵ Joseph Story, *Equity Jurisprudence*, § 1040, p. 407 (6th ed. 1853).

assignment agreements, the Uniform Commercial Code states “goods must be both existing and identified before any interest in them can pass. Goods which are not both existing and identified are ‘future’ goods. A purported present sale of future goods or of any interest therein operates as a contract to sell.”⁸⁶ The difference between a contractual right of assignment and an automatic assignment rule is significant. Corporations have quickly taken note of this contractual difference between “agree to assign” and “hereby assign” and employ the latter in their standard employment contract. Google’s employment contract, for example states, “I hereby irrevocably assign to Google Inc. my rights in all Assigned Inventions, and convey to Google Inc. ownership of any Assigned Inventions not yet in existence,” providing further emphasis of the reach into the future.⁸⁷ In a series of recent cases, the rule has meant stripping away an employee’s ability to contest the validity of the assignment agreement as well as fraudulent actions by their employers. Imagine an employee who pre-assigns all his future innovation and later discovers that his employer had falsely omitted her from several patent applications, and obtained patents without naming the employee as a co-inventor.⁸⁸ Employee inventors are now held to not have intervening equities that could defeat a pre-assignment contract.

In a current case on appeal before the Federal Circuit, inventor Dr. Alex Shukh discovered that he was wrongly omitted from several patents filed by his employer.⁸⁹ Shukh was a star inventor for Seagate, with nine of his inventions incorporated into several Seagate product lines of hard disk drives. While Shukh was named as an inventor for several of his inventions early in his employment, later on, when his work relationship with his supervisors became strained, Shukh discovered that Seagate applied for other patents on inventions he co-invented without disclosing his co-inventorship. Shukh demonstrated that he was given inventorship awards for inventions that Seagate had patent applications on, but he was falsely told these inventions would not be pursued for patenting. Automatic assignment construction divests inventors not only of ownership rights but also inventorship rights. The court ruled that because of the assignment

⁸⁶UCC 2-105(2).

⁸⁷ Google contract, *supra* note 42.

⁸⁸ Such an omission is in violation of the Patent Act (e.g.) requiring that patent applications can only be made by the true inventors. Sections 111, 115 and 116.

⁸⁹ Shukh v. Seagate Tech., LLC, CIV. 10-404 JRT/JJK, 2014 WL 1281518 (D. Minn. Mar. 31, 2014).

agreement, the employee did not have standing to seek correction of the patents nor did he have a reputational interest.⁹⁰

Courts have further interpreted the “automatic assignment” rule to divest an employee/inventor of standing to seek correction of inventorship under the Patent Act. In several recent cases, the Federal Circuit held that an inventor who has assigned his or her inventions to an employer does not have standing to sue for the correction of inventorship because the inventor no longer has a stake in the invention.⁹¹ In other words, the construction of “hereby assign” does not only propertize in advance all inventions that will be correctly filed by the employer, but also has the effect of preventing an employee/inventor from later correcting inventorship or claiming breach of the assignment contract when an employer wrongly omits the inventor from patent applications. Such a construction leaves employees without recourse when stripped not only from ownership but also attribution for their inventions.⁹²

2. After: Trailer Clauses and the Assignor Estoppel Doctrine

An invention assignment trailer clause is designed to ensure a company’s right to future inventions even after the departure of the employee. A typical trailer clause states that after the employee leaves her job, her former employer owns any patent filed within a specified period.⁹³ While some states restrict the ability of employers to require such assignments post-employment, most courts routinely enforce these clauses, except in extreme circumstances in which the trailer clause is unlimited in its time or scope. For example, a trailer clause that is set for an indefinite period of time into the post-employment future, assigning all invention made by the former employees for which the firm might have an interest, is likely to be deemed unreasonable and void.⁹⁴ The typical trailer clause,

⁹⁰See *Chou v. Univ. of Chi. & Arch Dev. Corp.*, 254 F.3d 1347 (Fed. Cir. 2001).

⁹¹In *Larson v. Correct Craft, Inc.*, 569 F.3d 1319, 1327 (Fed. Cir. 2009) and *Jim Arnold Corp. v. Hydrotech Sys., Inc.*, 109 F.3d 1567, 1571-72 (Fed. Cir. 1997).

⁹²*Shukh v. Seagate Tech., LLC*, CIV. 10-404 JRT/JJK, 2014 WL 1281518 (D. Minn. Mar. 31, 2014); currently on appeal, exchange with Chris Gekas, attorney of Alex Shukh, 10 June 2014.

⁹³*Ingersoll-Rand Co. v. Ciavatta*, 542 A.2d 879, 887 (N.J. 1988).

⁹⁴For example, in *Fed. Screw Works v. Interface Sys.*, the court held that a trailer clause for an indefinite period of time requiring former employees to turn over all inventions covering subjects both within the company’s field of activity or “contemplated field of activity” was too restrictive and overbroad. The court held that “it is not reasonable to confiscate all new inventions made by the employees for which Interface might have an interest.” *Fed. Screw Works v. Interface Sys., Inc.*, 569 F. Supp. 1562, 1564 (E.D. Mich. 1983).

limited in time, for example one year post-employment, and in scope, for example limiting the ownership over future innovation to inventions that relate to the former employer's business, is regularly upheld.⁹⁵

Like other cognitive controls, the benefits, legitimacy, enforceability, and scope of trailer clauses are questionable. Similar to other forms of cognitive controls, firms seek to obtain "more protection than the common law affords" by using trailer clauses.⁹⁶ The result is a penalty on former employees and their new employers if they wish to compete with their former firm. As such, they should be viewed as a post-employment restriction much like an absolute non-compete. As Robert Merges has described, trailer clauses "are best seen as particular applications of post-employment covenants not to compete, which have long represented a suspect class of obligations and are often voided under common-law restraint of trade principles."⁹⁷ Once again, the bargain reached in intellectual property is subverted by contractual arrangements purposely designed to give the firm ownership over innovation that would, by default, belong to its former employees.⁹⁸

In a recent case, a research scientist at Milliken resigned and started a new company.⁹⁹ The scientist had developed an idea for a new type of fiber while working for Milliken. In the months following his resignation, he continued to contemplate his idea, which led to his invention of a new fiber. Milliken alleged it owned the rights to the new fiber. The scientist had signed an assignment agreement when he began his employment at Milliken stating that any inventions by the scientist, patentable or not, relating to Milliken's business or research or resulting from work he performed for the company during his employment were the property of Milliken. The assignment clause had a holdover provision stating that such inventions developed within one year after termination of employment also belonged to Milliken. The scientist argued these covenants were invalid because they

⁹⁵ Marc B. Hershovitz, *Unhitching the Trailer Clause: The Rights of Inventive Employees and Their Employers*, 3 J. INTELL. PROP. L. 187, 197 (1995).

⁹⁶ *Id.* at 197.

⁹⁷ Robert P. Merges, *The Law and Economics of Employee Inventions*, 13 HARV. J.L. & TECH. 1 (Fall 1999).

⁹⁸ See also, Michel R. Mattioli, *The Impact of Open Source on Pre-Invention Assignment Contracts*, 9 U. PA. J. LAB. & EMP. L. 207 (2006). ("Unfortunately, pre-invention assignment agreements rendered these equitable solutions largely meaningless. And, rather than grappling with the troublesome implications of these forced agreements, courts of the early twentieth century generally followed a plain and simple path of enforcement.")

⁹⁹ *Milliken & Co. v. Morin*, 399 S.C. 23 (S.C. 2012).

were legally equivalent to non-compete agreements and created an unlawful restraint on trade. The South Carolina Supreme Court affirmed a jury verdict for Milliken, ruling that holdover invention assignment agreements “do not operate in restraint of the employee’s trade but merely vest ownership of an invention with the entity which ought to have it.”¹⁰⁰ While the court nodded to the idea that holdover clauses should be examined to ensure that they do not “curtail the employee’s ability to earn a living,” the court held that the one-year holdover was “eminently reasonable” because the invention was related to his former employer’s business. Yet, while a trailer clause does not prohibit an inventive employee from working for a competitor in absolute language:

Business competitors do not desire to hire individuals obligated under such a clause because the work product of such employees may not accrue to the new employer's benefit. At best, employers that hire inventive employees obligated under such agreements will under-utilize the employees' inventive skills so as not to develop conflicts with prior trailer clauses.¹⁰¹

Operating similarly to a trailer clause, the assignor estoppel doctrine, a recently developed doctrine in patent law, constitutes a post-employment restriction over the cognitive abilities of employees. The assignor estoppel doctrine is a rule of equity that prevents the assignor of a patent from raising the defense of invalidity in case of a suit of patent infringement.¹⁰² The doctrine of assignor estoppel was originally developed by courts to prevent unfairness in circumstances in which an owner of a patent right sells the right to her patent and later denies the value of the very thing from which she profited. The logic is analogous to landlord-tenant situations and estoppel by deed of real estate.¹⁰³ The courts viewed an “intrinsic unfairness in allowing an assignor to challenge the validity of the patent it assigned” because of “the implicit representation of validity contained in an assignment of a patent for value.”¹⁰⁴ This logic however is flipped on its head when we shift our inquiry from patent law to human capital law, examining the application of the doctrine in the context of pre-invention

¹⁰⁰ *Id.*

¹⁰¹ *Id.* at 198-99.

¹⁰² Franklin D. Ubell, *Assignor Estoppel: A Wrong Turn from Lear*, 71 J. PAT. & TRADEMARK OFF. SOC'Y 26, 27 (1989).

¹⁰³ *Pandrol USA, LP v. Airboss Ry. Prods., Inc.*, 424 F.3d 1161, 1166-67 (Fed. Cir. 2005).

¹⁰⁴ *Mentor Graphics Corp. v. Quickturn Design Sys.*, 150 F.3d 1374, 1379-1380 (Fed. Cir. 1998).

assignment in the employment relationship. As we saw, assignment clauses refer to future innovation rather than a patent-in-suit. The invention can be very different than what had been assigned. Indeed, the United States Patent and Trademark Office (USPTO) often determines that a filed patent application must be divided into two or more patents, expanded, or modified. Thus, assignment of future innovation is always done under conditions of uncertainty.¹⁰⁵ Put differently, in the context of human capital, the representation of the assignment in contracts assigning future innovation is made by the employer rather than the employee. Thus, the landlord parallels the employer and the tenant parallels the employee. The analogies that served as the basis for the development of the assignor estoppel doctrine do not simply fail, but are reversed.

In practice, the assignor estoppel doctrine operates to place a former employee and his new employer at a great disadvantage compared to all other competitors because their legal defenses are dramatically diminished. Because invalidity is a major defense in patent litigation,¹⁰⁶ in essence, assignor estoppel penalizes a former employee and thus creates a powerful disincentive for competitors not to hire an employee who has experience in the field. Essentially, anyone who already has human capital in the hiring company's field becomes a liability for the new company. The following has become a prevalent scenario: an employee, as part of his employment agreement, assigns an invention to the firm (Firm A). The employee moves to a competing firm, Firm B. After the employee leaves Firm A, Firm A files for a patent on the former employee's inventions. This can happen without the employee's knowledge or consent regarding the claims issued and the scope of the filed patents. Frequently, claims are filed post-employment and without the former employee's control over the filed claims. During this period after the employee began working at Firm B, she works on innovation for Firm B. If Firm A sues Firm B for patent infringement, Firm B is estopped from attacking the validity of the patent because it has hired a former Firm A employee and used her skills to continue innovating in her field of expertise.¹⁰⁷

¹⁰⁵ *Q.G. Prods., Inc. v. Shorty, Inc.* 992 F.2d 1211, 1213 (Fed. Cir. 1993) (“When the bounds of future patent claims are uncertain, the courts have recognized the need for “ample evidence to define the assignor's representations”).

¹⁰⁶ 35 U.S.C. 2282(b)(2),(3) (invalidity defenses). *Preston v. Marathon Oil Company*, 684 F.3d 1276 (Fed. Cir. 2012); *Bilski v. Kappos*, 130 S.Ct. 3218, 3229 (2010); *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006).

¹⁰⁷ *See e.g., Juniper Networks, Inc. v. Palo Alto Networks, Inc.*, CV 11-1258-SLR, 2014 WL 527621 (D. Del. Feb. 6, 2014).

The perverse result is that the most productive and experienced employees, who are already engaged in inventive activities in their industry, become untouchables.¹⁰⁸ The hiring of these employees who are already in the field creates an immense risk. Aberrantly, the more experienced an employee, the less employable they become. The assignment agreement coupled with the assignor estoppel doctrine becomes a *de facto* trailer clause, both tantamount to a post-employment non-compete.

3. And Everything in Between: Weekends and Nights

In *Mattel v. MGA* much of the trial drama centered on whether the court could pinpoint the moment that Carter Bryant created his brainchild, the Bratz doll. Recall that Bryant's employment agreement provided assignment for all inventions conceived or reduced to practice "at any time during (his) employment" at Mattel. Bryant argued that he came up with the concept of the doll while on a year leave from Mattel in 1998. Alternatively, he argued that even if he had worked on the concept during the period in which he was employed, he did this during his off time, at home at night and on weekends. The question then becomes, even if one assigns their rights for all innovation while employed, can assignment include all cognitive resources 24 hours a day and 7 days a week?

In looking at the issue, once again Judge Kozinski construed the issue as a question of contractual interpretation. Mattel argued that the contract must expand the contours of IP, which merely assigns to the employer work made for hire, otherwise, according to Mattel's logic, there would not be a need for a human capital contract. Judge Kozinski rejected Mattel's simplified version of IP/contract nexus:

Mattel argues that because employers are already considered the authors of works made for hire under the Copyright Act, 17 U.S.C. § 201(b), the agreement must cover works made outside the scope of employment. Otherwise, employees would be assigning to Mattel works the company already

¹⁰⁸ There may well be gender and age impact. Women are still more likely than men to be geographically constrained by dual career coordination. Restrictions over their job mobility may create a disincentive to move jobs altogether. Similarly, older employees are likely to have more job experience, which perversely, under the new cognitive property, creates a further penalty on their employment, in a labor market that is already prone to age discrimination. See, e.g.,—Noam Scheiber, *The Brutal Ageism of Tech*, New Republic, Mar. 23, 2014.

owns. But the contract provides Mattel additional rights by covering more than just copyrightable works.¹⁰⁹

In other words, the mere existence of an assignment agreement is not enough to expand the legal contours of IP ownership. At the same time, Judge Kozinski took no issue with expansion by contract as long as it is clearly drafted with specific language. Judge Kozinski thereby remanded the case so the lower court could examine the ambiguous contract by looking at past practices and industry norms. Judge Kozinski accepted the expansion of innovation ownership by contract beyond what IP doctrine provides but urged the use of direct language, thereby setting a corporate learning curve for effectively erecting cognitive fences.

While some states delineate some limits on assignment contracts, most states allow for an expanding requirement to relinquish all rights of invention during the term of employment.¹¹⁰ Even those states that limit certain types of assignment in practice provide a very narrow restriction on assignment. California's Labor Code, one of the states that delimit the scope of pre-invention assignment, states that an employment agreement requiring an employee to transfer her rights to an invention is not enforceable if the invention was developed entirely on her own time and without using employer resources or trade secrets, unless the invention was anticipated as part of the job for which she was hired.¹¹¹ In the context of Google for example, this narrow exception becomes particularly mute. As one recent Google hire described,

Google is gigantic and has teams working on virtually everything (including things they're not known for like games, education, flying magnets, etc.), even if these interests are a tiny fraction of the company. Thus it seems they could claim just about anything."¹¹²

In the contemporary knowledge economy, almost any innovation can be construed as related to the firm thereby rendering most exceptions irrelevant. Relatedly, in today's patterns of work, in which employees are expected to be connected to the workplace around the clock through remote

¹⁰⁹ *Mattel, Inc. v. MGA Entm't, Inc.*, 616 F.3d 904, 913 n.7 (9th Cir. 2010).

¹¹⁰ Donald J. Ying, *A Comparative Study of the Treatment of Employee Inventions, Pre-Invention Assignment Agreements, and Software Rights*, 10 U. PA. J. BUS. & EMP. L. 763 (2008).

¹¹¹ *Cubic Corp v. Marty*, 229 Cal. Rptr. 438 (Cal.Ct.App.1986); *Cadence Design Sys., Inc. v. Bhandari*, 2007 WL 3343085 (N.D.Cal.2007) (holding that under Cal. Labor Code § 2870, inventions that are "related to" an employer's business interest are not limited to the smallest business division in which the employee actually works; inventions within the general scope of the employer's business may be pre-assigned).

¹¹² Email exchange, Google hire, on file with author.

electronic devices, work time appears to be timeless and without boundaries. Thus, even in the absence of an invention assignment contract, courts have broadly interpreted the doctrine of hired-to-invent to include work done at home. For example, the employer can own original sketches of an invention made by an employee at his home because the company had tasked him with inventing the process at issue.¹¹³ To be on the safe side, companies explicitly draft the assignment contract to include work done during off hours. Google, for example, explicitly encompasses weekends and nights into its standard assignment agreement, stating, “Google Inc. will own all Inventions that I invented, developed, reduced to practice, or otherwise contributed to, solely or jointly with others, during my employment with Google (*including during my off-duty hours*).”¹¹⁴

Traditionally, IP law attempted to incentivize employee invention by striking the balance of granting the employee’s ownership over most innovation and providing the employer a partial stake in the invention, termed *shop-right*. The shop-right is an implied license granted by the inventor to her employer to use an invention created outside the scope of the employee’s duties when the invention is related to the company and the work environment contributed to its creation.¹¹⁵ Today, this doctrine is becoming obsolete because the expansion by contract of corporate ownership has tipped the balance to include innovation far beyond work-for-hire and hire-to-invent. In the contemporary labor market, even in the absence of a signed contract, some courts allow pre-innovation assignments via oral or implied agreements.¹¹⁶

¹¹³ Teets v. Chromalloy Gas Turbine Corp., 83 F.3d 403, 408, 408 (1996).

¹¹⁴ Google contract. Ironically, the expansion of time exists in tension with the efforts made to draw the lines between work hour and off time. Employment laws militantly police the lines between on the job and off the job hours for the purposes of wage and hour. In this past term, the Supreme Court spent hours deciding a case concerning whether donning and doffing work gear is time worked or uncompensable arrival time to the workplace. *See Sandifer v. U.S. Steel Corp.*, 134 S. Ct. 870 (2014). And yet, with regard to fruits of an employee’s labor, courts have increasingly rejected the distinction between on the job and off the job efforts.

¹¹⁵ *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 188 (1933).

¹¹⁶ *Dickman v. Vollmer*, 736 N.W.2d 202 (Wis. Ct. App. 2007) (holding that agreements to assign do not need to be in writing; upon sufficient proof, oral pre-assignments may be upheld); *Larson v. Correct Craft, Inc.*, 537 F. Supp. 2d 1264 (M.D. Fla. 2008).

C. The Partiality/Totality Spectrum: Non-Competes and Non-Competes on Steroids

1. The Rise of the Post-Employment Covenant Thicket

The signing of a non-compete contract has become a standard requirement in our contemporary labor market. Employees routinely sign non-competes promising to not work in their profession in the same region for a period of time. The vast majority of senior executives are bound by non-compete clauses.¹¹⁷ At the same time, non-competes are also on a sharp rise for all non-managerial employees.¹¹⁸ Workers ranging from event planners to chefs, from investment fund managers to yoga instructors, from physicians to camp counselors are all increasingly required to sign them.¹¹⁹ The number of lawsuits involving non-competes has more than doubled in the past decade.¹²⁰ Attorneys describe non-competes as “the most powerful weapon for employer.”¹²¹ And yet, the legal disputes only show the tip of the iceberg because the large majority of employees do not choose to challenge the validity of these contracts.¹²²

In debates about patent law reform, the patent thicket connotes a dense web of IP protections which in aggregate obstructs entry to markets and thus impedes innovation.¹²³ In other words, the sheer quantity of the restrictions qualitatively changes the nature of competition.¹²⁴ It creates a

¹¹⁷ Non-competes exist in almost 80% of chief executive contracts and over 70% of senior executive contracts. Norman Bishara, Kenneth J. Martin, & Randall S. Thomas, *When Do CEOs Have Covenants Not to Compete in Their Employment Contracts?* (VAND. L. & ECON., Working Paper No. 12-33, 2013), available at SSRN: <http://ssrn.com/abstract=2166020>. Mark J. Garmaise, *Ties that Truly Bind: Non-competition, Agreements, Executive Compensation and Firm Investment*, 27. 2 J. L. ECON. & ORG. 376, 376 (2011).

¹¹⁸ Matt Marx, *The Firm Strikes Back: Non-compete Agreements and the Mobility of Technical Professionals*, 76 AM. SOC. REV. 695, 695 (2011).

¹¹⁹ Steven Greenhouse, *Noncompete Clauses Increasingly Pop Up in Array of Jobs*, N.Y. TIMES. June 2014.

¹²⁰ BRR, *Trade Secret and Noncompete Reported Decisions, 2014* <http://faircompetitionlaw.files.wordpress.com/2014/01/trade-secret-cases-survey-graph-20140105.jpg>

¹²¹ Matthew Huddleston, *Foot Anstey: Non-compete clauses - the most powerful weapon for employers*, Money Marketing. May 27 2014.

¹²² Orly Lobel, *Suppressing Mobility Suppresses Innovation*, N.Y. TIMES. June 11, 2014.

¹²³ Ian Hargreaves, *Digital Opportunity: A Review of Intellectual Property and Growth* (May 2011).

¹²⁴ Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting* (2001). In Adam B. Jaffe; et al., *Innovation Policy and the Economy I*.

thick cluster of property rights that rigidifies the market and reduces the ability to move forward. Non-competes are not only pervasive but also broad and often amorphous. Non-compete contracts are often drafted in an attempt to prevent all possible forms of competition, or indeed, departure, of employees. A recent example involving a sales representative is illustrative, prohibiting the former employee from working for a competitor in any capacity. A North Carolina court of appeals deemed the contract overly broad and thereby unreasonable and unenforceable.¹²⁵ Most states employ such an ad hoc standard of reasonableness to test the validity of a non-compete. Current policies delineating the enforceability of these controls are largely case-by-case and unpredictable. As one court described this unpredictability:

No layman could realize the legal complication involved in [the] uncomplicated act [of signing a non-compete]. This is not one of those questions on which the legal research cannot find enough to quench his thirst. The contrary, there is so much authority it drowns him. It is a sea – vast and vacillating, overlapping and bewildering. One can fish out of it any kind of strange support for anything, if he lives so long. This deep and unsettled sea pertaining to an employee’s covenant not to compete with his employer after termination of employment is really Seven Seas and now that the court has sailed them, perhaps it should record those seas so that the next weary traveler may be saved the terrifying time it takes just to find them.¹²⁶

The reasonableness standard is an open-ended legal term, consisting of a balancing test applied by the courts weighing “legitimate business interests,” “employee hardships,” and the “public interest.” The balancing is generally conducted on a case-by-case basis, without either referencing contemporary data or generalizing beyond the particular facts of each dispute. The court’s reasoning in these cases is often conclusory and subjective.¹²⁷

In practice, most employees will alter their careers and decision-making to avoid risk rather than challenge unreasonable non-competes in

Cambridge: MIT Press, 119–150, ISBN 0-262-60041-2.

¹²⁵ CopyPro, Inc. v. Musgrove, 754 S.E.2d 188 (N.C. Ct. App. 2014).

¹²⁶ Arthur Murray Dance Studios v. Witter, 105 N.E.2d 685, 687-88 (Ohio Ct. C.P. 1952).

¹²⁷ Orly Lobel, *Intellectual Property and Restrictive Covenants*, in ELGAR ENCYCLOPEDIA OF EMPLOY’ T L. AND ECON. (Kenneth Dau-Schmidt, Seth Harris & Orly Lobel eds., 2009).

court. One study that examines the behavioral patterns of almost 100,000 inventors bound by post-employment restrictions finds that these inventors are likely to engage in survival tactics such as taking unpaid sabbaticals and unemployment, leaving their profession, or severing their past professional connections, in the hope that they will fly under their former employers' radar should they continue to work in their chosen career path.¹²⁸ Another study, which looked at the emigration of inventors, found that inventors leave states that enforce non-compete agreements in far higher rates than they leave states that do not.¹²⁹ These findings led the researchers to conclude that non-competes lead to a 'brain drain' of the most valuable knowledge worker. They warn that the evidence suggests non-competes drive away those with the strongest human capital, a phenomenon, which over time, keeps the least desirable employees in regions that enforce non-compete restrictions while pushing the best employees to more open regions.

From a firm perspective, many potential new employers will not risk a lawsuit by hiring an employee already bound by a non-compete. For example, in a recent case, a former employer sent a competitor, who hired its departing employee, a letter about the existence of a non-compete.¹³⁰ In a standard move, the employee was immediately fired from the new job. In this case, the employee filed a lawsuit against his former employer for tortious interference with his relationship with the new employer. The court dismissed the case, explaining that a former employer has a right to send such warning letters and that the result of the firing does not present a legal issue.

Only a handful of states ban or nearly ban the enforcement of non-compete agreements, most notably California, which has banned non-competes since the founding of the state. The California Business and Professions Code voids "every contract by which anyone is restrained from engaging in a lawful profession, trade, or business."¹³¹ The courts have

¹²⁸ Matt Marx & Lee Fleming, *Non-compete Agreements: Barriers to Entry...and Exit?*, in *Innovation Policy and the Economy* 12. (J. Lerner and S. Stern eds., 2012); Matt Marx, *The Firm Strikes Back: Non-compete Agreements and the Mobility of Technical Professionals*, 76 AM. SOC. REV. 695, 695 (2011).

¹²⁹ Matt Marx, Jasjit Singh & Lee Fleming, *Regional Disadvantage? Non-Compete Agreements and Brain Drain* (2010) (even when California is excluded from the analysis, the data shows a 25% higher emigration rate from high enforcement states to weaker enforcing states).

¹³⁰ *Bonds v. Philips Elec. North America*, 2014 WL 222730 (E.D. Mich. January 21, 2014).

¹³¹ California Business and Professions Code, § 16600.

understood this exceptional California law, which runs contrary to most other states, as a policy of favoring open competition and promoting a citizen's right to pursue the employment and enterprise of his or her choice.¹³²

In April 2014, Massachusetts Governor Deval Patrick proposed banning non-competes in the state, alluding to the new evidence demonstrating their detrimental effects.¹³³

2. Name Game: Non-Solicitation, Non-Dealing, and Non-Poaching

An effective non-compete contract does not need to be labeled or entitled as such. Restrictions over the use of human capital do not have to explicitly use the language of non-competes to reach the result of restricting employee mobility post-employment. As discussed above with regards to trailer clauses, trade secrets, and the doctrine of assignor estoppel, imposing a post-employment penalty on a former employee is tantamount in its economic effect as non-competes. Increasingly, a standard human capital clause is a non-solicitation clause, an agreement in which an employee agrees not to solicit a company's clients or customers, for her own benefit or for the benefit of a future employer after leaving the company.¹³⁴ A non-dealing clause is an even stronger prohibition, precluding the employee from dealing with the former employer's customers post-employment even if these customers approach the former employee without solicitation.¹³⁵ A

¹³² *Beer & Wine Servs., Inc. v. Dumas*, No. CV990782, 2003 WL 1194725, at *3 (Cal. Ct. App. Mar. 17, 2003).

¹³³ Callum Borchers & Michael B. Farrell, *Patrick looks to eliminate tech noncompete agreements*, BOSTON GLOBE. April 10, 2014.

¹³⁴ David J. Carr, *The Protection of Trade Secrets, Confidential Information and Goodwill: Drafting Enforceable Confidentiality, Non-Compete and Non-Solicitation Agreements: 10 Tricks and Traps*, A.B.A. (2002), <http://www.americanbar.org/content/dam/aba/migrated/labor/basics/tradesecrets/papers/carr.authcheckdam.pdf>; David L. Johnson, *The Parameters of "Solicitation" in an Era of Non-Solicitation Covenants*, 28 ABA J. OF LABOR & EMPLOY'T L. 99 (Fall 2012) ("addition to requiring employees to be bound by non-compete and non-disclosure covenants, employers routinely require employees to be bound by covenants precluding them from soliciting customers or co-workers").

¹³⁵ *Curtis 1000, Inc. v. Martin*, 197 F. App'x 412, 423 (6th Cir. 2006) (enforcing covenant prohibiting individual from accepting unsolicited business from his former employer); *USI Ins. Serv., LLC v. Miner*, 801 F. Supp. 2d 175, 188 (S.D.N.Y. 2011) (same); *Pulse Techs., Inc. v. Dodrill*, No. CV-07-65-ST, 2007 WL 789434, at *12 (D. Or. Mar. 14, 2007) (same); *Ecolab, Inc. v. K.P. Laundry Mach., Inc.*, 656 F. Supp. 894, 897 (S.D.N.Y.1987) (same); *Clark v. Liberty Nat'l Life Ins. Co.*, 592 So. 2d 564 (Ala. 1992); *Spitz, Sullivan, Wachtel & Falcetta v. Murphy*, No. CV-86-0322422, 1991 WL

non-poaching clause prohibits the former employee from luring away any employees of the former employer. For example, Google's employment contract includes the following clause:

[D]uring my employment with Google and for twelve months immediately following its termination for any reason, whether voluntary or involuntary, with or without cause, I will not directly or indirectly solicit any of Google's employees to leave their employment.¹³⁶

In some instances, courts even construe a non-solicitation clause as a non-dealing clause. In *Manuel Lujan Insurance, Inc. v. Jordan*, an insurance company employed the defendant as a manager in its bond department. Part of the employment agreement included a promise to "not for a period of two (2) years from the date of termination of employment solicit the customers (policyholders) of the Company, either directly or indirectly." The agreement further stated that "[t]he purpose of this paragraph is to ensure that the employee for the periods set out herein, will not in any manner directly or indirectly enter into competition with the Company or the customers of the Company as of date of termination."¹³⁷ The trial court enjoined the former employee from soliciting or accepting business from the company's customers. Upon appeal, the Supreme Court of New Mexico explained:

It is not clear whether the word "solicit" should be narrowly interpreted as precluding only solicitation but allowing to accept the unsolicited business of customers. On the other hand, inclusion of the non-competition provision in the second sentence may be viewed as including prohibitions against any acceptance of, or competition for, the customers.

The court concluded that, looking at the totality of the wording in the contract and the surrounding evidence presented in court, it was "apparent that the parties intended that [the former employee] be restricted

112718, at *6 (Conn. June 13, 1991) ("defendant has cited no Connecticut precedent which renders such an agreement unenforceable merely because it prohibits a defecting professional employee from servicing unsolicited clients of his former employer"); *Env'tl. Servs., Inc. v. Carter*, 9 So. 3d 1258, 1266 (Fla. Dist. Ct. App. 2009) (temporary injunctive relief preventing former employee from performing services for employer's customers).

¹³⁶ Google contract, on file with author.

¹³⁷ *Manuel Lujan Insurance, Inc. v. Jordan*, 673 P.2d 1306, 1308 (N.M. 1983).

from competing by not soliciting or accepting business from customers.” The court thus held that the contract should be read as a comprehensive ban on acceptance, not merely a narrow promise not to solicit. Even in the absence of express non-solicitation agreements, client lists are often considered trade secrets, at the very least if such lists contain information that is not easily ascertainable through publicly available lists, such as details about the clients’ past orders or any information that could undercut a competitor’s pricing beyond merely the names and contacts of clients.¹³⁸

Non-poaching and non-hiring clauses round out the list of untouchables – expanding ownership from clients to co-workers - by stripping former employees of their professional network. In some instances, like with non-solicitation, courts have interpreted non-poaching clauses as an absolute prohibition of hiring former co-workers. For example, in *International Security Management Group, Inc. v. Sawyer*, an employee signed a contract agreeing that he would not “solicit” any co-worker to “terminate that person's employment and to accept employment with” a competitor.¹³⁹ The former employee was approached by former co-workers after placing an ad in the local newspaper. A Tennessee federal district court held that “the extension of a job offer alone would qualify as solicitation, as it constitutes ‘an instance of requesting or seeking to obtain something.’” At the same time, other courts have construed non-solicitation clauses more narrowly, as only prohibiting active and specific inducement.¹⁴⁰ To expand the reach of the prohibition more explicitly, non-hiring clauses encompass the more passive instances in which a co-worker approaches the former employee for a job.¹⁴¹ All of these clauses, targeting the connections formed between former employees and their professional networks, impose a competition penalty on former employees and function equivalently to non-competes. Courts have largely accepted that using prior

¹³⁸ *Optos Inc. v. Topcon Med. Sys., Inc.*, 777 F.Supp.2d 217 (2011); *Tom James Co. v. Hudgins* 261 F.Supp.2d 636 (2003); *Home Pride Foods, Inc. v. Johnson* 634 N.W.2d.774 (2001).

¹³⁹ *Int'l Sec. Mgmt. Grp., Inc. v. Sawyer*, 3:06CV0456, 2006 WL 1638537 (M.D. Tenn. June 6, 2006).

¹⁴⁰ *Enhanced Network Solutions Grp., Inc. v. Hypersonic Technologies Corp.*, 951 N.E.2d 265 (Ind. Ct. App. 2011); *Meyer-Chatfield v. Century Bus. Servicing, Inc.*, 732 F. Supp. 2d 514 (E.D. Pa. 2010) (“the term ‘solicit’ as such is not ambiguous, and cannot be defined to include mere hiring,” and “the parties could have easily stipulated that Defendants could not ‘solicit or hire’ Plaintiff employees, but instead used only the word ‘solicit’”).

¹⁴¹ Still, some courts have found that non-hiring clauses are unenforceable, similarly to non-competes, *Cox v. Altus Healthcare & Hospice, Inc.*, 706 S.E.2d 660, 664 (Ga. Ct. App. 2011); *Cap Gemini Am., Inc. v. Judd*, 597 N.E.2d 1272, 1287 (Ind. Ct. App. 1992).

knowledge and experience in an attempt to compete over customers and market talent breaches upon corporate rights to cognitive property.

3. Cognitive Cartels

Starting in 2005, top executives at Google, Apple, Adobe, Intel, Intuit, Pixar, Lucas Film, eBay and other major high tech companies reached gentlemen's agreements to not hire each other's employees. The no-hire agreements covered the entire workforce of each company and were not limited by geography, job function, product group, or time period. In 2010, the Antitrust Division of the United States Department of Justice filed a complaint against these tech giants, deeming such do-not-hire agreements to be collusive restraints on trade and competition. The breadth of the agreements led the Department of Justice to conclude that these agreements were *per se* violations of American antitrust law. The settlement reached between the Department of Justice and the high-tech companies enjoins the non-solicit agreements and, more broadly, prohibits agreements regarding solicitation and recruitment. The Department of Justice stated:

These actions by the Antitrust Division remind us all that the antitrust laws guarantee the benefits of competition to all consumers, including working men and women. The agreements we challenged here not only harmed the overall competitive process but, importantly, harmed specialized and much sought after technology employees who were prevented from getting better jobs and higher salaries. Stifling opportunities for these talented and highly-skilled individuals was bad for them and bad for innovation in high-tech industries.¹⁴²

In 2013, the 9th circuit certified a private class of 64,000 former employees of these high-tech giants who filed a class action, arguing that these anti-competitive practices depressed their wages in the industry. The high-tech talent cartel ran deeper and broader than this first unique class action reveals. There is evidence to suggest that other companies, including Comcast, Genentech, PayPal, Nvidia, Dell, Microsoft, DoubleClick

¹⁴²Remarks as Prepared for Delivery by Assistant Attorney General Bill Baer at the Conference Call Regarding the Justice Department's Settlement with eBay Inc. To End Anticompetitive "No Poach" Hiring Agreements Thursday, May 1, 2014 Delivery by Assistant Attorney General Bill Baer WWW.JUSTICE.GOV WASHINGTON, D.C.

EarthLink, AOL, Ask Jeeves, Clear Channel, Oracle, Lycos, Palm, Best Buy, Nike, Foxconn, and Bell Canada may have been involved in these human capital collusions.¹⁴³

Steve Jobs was the architect and driving force of these cognitive cartels. Jobs emailed Google warning, “If you hire a single one of these people that means war.”¹⁴⁴ The secret agreement that followed was so strong that when a Google recruiter did contact Apple engineers, Jobs immediately reminded Google of his warning. Google fired the recruiter immediately. According to the allegations, Google even asked for Jobs’ permission to hire former Apple employees. In addition, the do-not-hire agreements spun globally, for example, one email reveals Google’s Pacific Leadership Recruiter asking Google’s Director of Recruiting to confirm whether they can cold call companies in Korea “excluding the ‘do not cold call’ companies, of course.”¹⁴⁵ The collusive agreements included not only the engineers, but also the chefs who worked in the company cafeteria.¹⁴⁶ Recruiters received lists of companies off limits, “no one calls, networks or emails into the company or its subsidiaries looking for people.”¹⁴⁷ The record indicates that top executives at these Silicon Valley giants understood the possible illegality of these agreements. Eric E. Schmidt, Google’s CEO at the time, asked his people to not keep a paper trail about the agreements.

These no-poaching practices likely led to significant hiring and innovation problems for the companies themselves, as evidenced by Google’s internal memos that reveal the difficulties teams had in filling spots and maintaining their innovative edge.¹⁴⁸ Consequently, in addition to the employee class action, an even more recent class action was filed against Google by its shareholders.¹⁴⁹ The shareholder derivative action seeks to recover damages caused by Google’s high-level executives for the illegal non-solicitation agreements that “not only hurt employees of these companies, but also the companies themselves because Silicon Valley’s innovation is based in large part on the frequent turnover of employers,

¹⁴³ Google had a protocol for “do not call cold” and “sensitive” companies.

¹⁴⁴ David Streitfeld, *Engineers Allege Hiring Collusion in Silicon Valley*, N.Y. TIMES. Feb. 28, 2014.

¹⁴⁵ Compl. at 32-33, Pradeep Shah v. Google Inc. et al.(Cal. Super. Ct. Santa Clara Cnty., Apr. 29, 2014) (No.114-cv-264512).

¹⁴⁶ *Id.*

¹⁴⁷ *Id.*

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*

which cause information diffusion and spurs innovation.”¹⁵⁰ Specifically, the shareholder suit claims that Google’s executives violated the company’s own code of conduct which states that Google “strives to hire the best employees, with backgrounds and perspectives as diverse as our global users...competition for qualified personnel in our industry is intense, particularly for software engineers, computer scientists, and technical staff.”¹⁵¹

Notably, the flipside of such collusive agreements are cases which deem the inducement of employees of other companies to leave their employer as actionable. A Pennsylvania court, for example, explained “systemically inducing employees to leave their present employment is actionable ‘when the purpose of such enticement is to cripple and destroy an integral part of a competitive business organization rather than to obtain the services of particularly gifted or skilled employees.’”¹⁵² The irony of the Silicon Valley cognitive cartel is that it occurred precisely in the region that has most benefited from California’s exceptional policy of voiding non-compete agreements.¹⁵³

The DOJ called the cognitive cartels formed in Silicon Valley “blatant and egregious.”¹⁵⁴ When Intuit sent a recruiting flyer to an eBay employee, eBay CEO Meg Whitman immediately contacted top executives at Intuit asking them to “remind your folks not to send this stuff to eBay people.” She wrote Google’s Eric Schmidt that “recruiting practices are ‘zero sum’” and that targeting eBay employees “drives salaries up across the board,” which, in the “valley’s view,” is an “unfair practice.” This exchange epitomizes the upside-down world of the new cognitive property: talent mobility is deemed an “unfair practice” while suppressing competition through human capital control becomes the norm. This pattern resonates with earlier IP debates, in particular in the copyright world. Larry Lessig famously lamented the gap between the early Disney years, when “to use the language of the Disney Corporation today, Walt Disney ‘stole’

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

¹⁵² *Boyce v. Smith-Edwards-Dunlap Co. v. Franklin Printing Co.*, 580 A.2d 1382, 1390 (Pa. Super. Ct. 1990).

¹⁵³ Bruce Fallick et al., *Job-Hopping in Silicon Valley: Some Evidence Concerning the Microfoundations of a High-Technology Cluster*, 88 REV. ECON. & STATS. 472, 478 (2006); Lee Fleming & Matt Marx, *Managing Creativity in Small Worlds*, 48 CAL. MGMT. REV., at 6, 15 (Summer 2006).

¹⁵⁴ Assistant General Attorney Bill Baer Remarks *supra* note 142.

Willie [which became Mickey Mouse] from Buster Keaton” and the reality today.¹⁵⁵ While a large number of Disney’s animated hits are derived from the Brothers Grimm fairytales and culture icons, under contemporary realities, with the strengthening of copyright protections, “no one can do to the Disney Corporation what Walt Disney did to the Brothers Grimm (and to Steamboat Bill).”¹⁵⁶ The same is happening today in human capital law. Companies such as Apple and Google, which had benefited from the vibrant culture of innovation and mobility in Silicon Valley, have become entrenched in the notion of ownership over human capital, such that they aim to not let others do to them what they had done to others: recruit experienced employees. A final irony in this context should be noted. In the past few years, Silicon Valley leaders have been vocal about a talent drought, strongly advocating immigration reform to allow more flow of employees from around the world.¹⁵⁷ And yet, these same high tech leaders conspired to suppress the market for talent in their own region.

II. DIMENSIONS OF KNOWLEDGE: THE DETRIMENTAL LAYERED EFFECTS OF COGNITIVE PROPERTY

The effects of contemporary human capital law, creating an ever-expanding realm of cognitive property, should be understood in relation to the multiple dimensions of human knowledge. In 1675, Sir Isaac Newton wrote in a letter to his rival Robert Hook, “If I have seen further (than you and Descartes) it is by standing upon the shoulders of Giants.”¹⁵⁸ Every great innovator – artist, engineer, scientist, and author – in history stood upon the shoulders of giants and it is inherently the nature of knowledge to fertilize more knowledge. Stripping individuals of the wealth of knowledge and experience they carry has detrimental effects on innovation, market competition, and economic growth. While some of these understandings are intuitive, new field and experimental research about knowledge flows and job mobility, enriched by contemporary economic analysis of innovation policy, presents a clearer understanding of the new cognitive property and its detrimental effects. The harms include the prevention of talented individuals from standing upon the shoulders of giants, sharing knowledge, and making use of their human capital. In turn, as the research shows, such restrictions stymie industry innovation and economic growth.

¹⁵⁵ Steven Levy, *Lawrence Lessig Supreme Showdown*, Wired. June 2002. http://archive.wired.com/wired/archive/10.10/lessig_pr.html

¹⁵⁶ *Id.*

¹⁵⁷ Orly Lobel, *Suppressing Mobility Suppresses Innovation*, N.Y. TIMES. June 11, 2014.

¹⁵⁸ Robert K. Merton, *On the Shoulders of Giants* 31 (1965).

The following subsections unpack these concerns by developing a novel taxonomy of the multiple facets of knowledge, as it inhabits contemporary talent pools. To fully understand the effects of the new cognitive property, we need to investigate the core building blocks of human knowledge and the stepping-stones of innovation and progress. Human capital is the stock of knowledge in all its multiple forms that contributes to productive work, including knowledge that is non-codifiable, knowledge that expresses itself in skills and know-how, in relationships and network, in creativity and motivation, and in the ability to disrupt and energize.

A. Tacit Knowledge

The new cognitive property should be understood as an attempt to capture not only codifiable, but also non-codifiable knowledge, precisely the type of knowledge that intellectual property law leaves in the public domain. Nobel laureate Elinor Ostrom counseled, “an infinite amount of knowledge is waiting to be unearthed. The discovery of future knowledge is a common good and a treasure we owe to future generations. The challenge of today’s generation is to keep the pathways to discovery open.”¹⁵⁹ Knowledge, however, is not merely a good to be unearthed, traded, and then bequeathed as “a treasure” to future generations. In its full breadth, knowledge cannot be captured by merely considering codified information; the kind that can be embedded in intellectual property. Knowledge is also the human skills, communications, and know-how that exist within and between people. A useful way to understand the complexity of knowledge and its relation to human capital is that knowledge embodies a dual function: it exists as a thing external to the human mind but it is also the foundation of our cognitive systems – to be human is to know. Renowned economist Fritz Machlup identified the distinction between “*knowing that*” and “*knowing how*,” referring to the latter as *brainwork*.¹⁶⁰ Karl Polanyi relatedly distinguished between connoisseurship - the art of knowing - and skills - the art of doing.¹⁶¹ In broader terms, spanning beyond any one individual, knowledge is both a resource society possesses and the very essence that constitutes a society.¹⁶²

¹⁵⁹ CHARLOTTE HESS & ELINOR OSTROM, UNDERSTANDING THE KNOWLEDGE COMMONS (2006).

¹⁶⁰ F. Machlup, *Semantic Quirks in Studies of Information*, in THE STUDY OF INFORMATION: INTERDISCIPLINARY MESSAGES (F. Machlup and U. Machlup eds., 1983).

¹⁶¹ Michael Polanyi, *Personal Knowledge: Towards a Post-Critical Philosophy* (1958).

¹⁶² Jerome Reichman & Jonathan Franklin, *Privately Legislated Intellectual Property*

Even in the information age, when the digital sphere provides abundant access, knowledge exchanges still rely on direct human contact.¹⁶³ There is a consensus in the literature that the effects of knowledge flows are geographically localized.¹⁶⁴ Indeed, the differences between the quality of human capital has become key to understanding the challenges of economic development.¹⁶⁵ Despite global technology and the accessibility of information through the Internet, firms are far more likely to quote research from a local university than a distant university, exemplified in patent applications.¹⁶⁶

Tacit knowledge is particularly localized compared to written knowledge precisely because it is embedded in people. Knowledge remains tacit, rather than codified for two reasons. First, by nature certain types of knowledge simply cannot be written down. As Polanyi put it, “we can know more than we can tell.”¹⁶⁷ This is why tacit knowledge is difficult to transmit through a patent document or a scientific journal.¹⁶⁸ Second, even when knowledge is amenable to codification, those holding the knowledge often lack incentive to codify it.¹⁶⁹ Direct interactions between people are thus the primary vehicle of transmitting these aspects of knowledge. Given that information is not fully captured by sources outside the minds of individuals, knowledge flows in the market through employee mobility and professional interaction. Kenneth Arrow hailed mobility of employees as a central way of spreading information.¹⁷⁰ As Dan Burk put it,

Rights” Reconciling Freedom of Contract with Public Good Uses of Information, 147 U. PA. L. REV. 875-970 (1999).

¹⁶³Pankaj Ghemawat (March/April 2007) "Why the World Isn't Flat" Foreign Policy.

¹⁶⁴ Ajay Agrawal, I. Cockburn & John McHale, *Gone but Not Forgotten: Knowledge Flows, Labor Mobility, and Enduring Social Relationships*, 6 J. OF ECON. GEOGRAPHY 571 (2006); Peter Thompson & Melanie Fox-Kean, *Patent Citations and the Geography of Knowledge Spillovers: A Reassessment*, 95 AM. ECON. REV. 450-460 (2005).

¹⁶⁵ Paul Krugman, *Geography and Trade* (1992).

¹⁶⁶ Adam B. Jaffe et al., *Geography Localization of Knowledge Spillovers as Evidence by Patent Citations*, 108 Q. J. OF ECON. 577 (1993); Paul Almeida & Bruce Kogut, *Localization of Knowledge and Mobility of Engineers in Regional Networks*, 45 MGMT. SCI. 905-917 (1999).

¹⁶⁷ Polanyi, *supra* note 161.

¹⁶⁸ Peter Lee, *Transcending the Tacit Dimension: Patents, Relationships, and Organizational Integration in Technology Transfer*, 100 CALIF. L. REV. 1503 (2012).

¹⁶⁹ Ajay Agrawal, *Engaging the Inventor: Exploring Licensing Strategies for University Inventions and the Role of Latent Knowledge*, 27 STRATEGIC MGMT. J. 63-79 (2006).

¹⁷⁰ Kenneth J. Arrow, *The Economic Implications of Learning by Doing*, 3 REV. OF ECON. STUDIES 29, 155-73 (1962); Kenneth J. Arrow, *Collected Papers of Kenneth J. Arrow: The Economics of Information* (Massachusetts: Harvard University Press 1984).

uncodified knowledge “moves only with the humans who carry it.”¹⁷¹

B. Relational & Networked Knowledge

Relationships spur innovation. In part, it is the existence of tacit knowledge that drives the formation of social ties and a professional community.¹⁷² Knowledge flows between people through relationships. These relationships continue after people move jobs, forming professional connections where past colleagues remain acquaintances and potential collaborators. But beyond the flow of tacit knowledge, relationships create opportunities for connecting between distinct types of knowledge and ideas. A series of recent studies test the importance of collaboration between professionals over time. Several important insights arise from this body of research. First, the existence of professional ties highly impacts the likelihood of individual entrepreneurial activity.¹⁷³ These relationships enable an individual to identify entrepreneurial opportunities and increase her motivation to pursue those opportunities, especially for those without exposure to entrepreneurship in their own family.¹⁷⁴ Second, relationships activate participation in collaborative efforts and the more collaborators an individual has had, the more likely she is to participate again in a collaborative venture.¹⁷⁵ Third, and perhaps most importantly, knowledge is not only relational, but networked in the sense that the combined knowledge that exists within a region or a professional community impacts the future knowledge ventures of each individual. Contemporary research illuminates the ways knowledge is embedded in institutions.¹⁷⁶ Organizations, professional networks, and regions can be understood to have “DNA” in the sense of patterning individual processes. An impressive body of research demonstrates the ways the richness of ties in a locality determines the quality and breadth of creativity found in that region.¹⁷⁷ When a regional

¹⁷¹ Dan L. Burk, *The Role of Patent Law in Knowledge Codification*, 23 BERKELEY TECH. L.J. 1009, 1013 (2008).

¹⁷² ZYGMUNT BAUMAN, *COMMUNITY: SEEKING SAFETY IN AN INSECURE WORLD* (2001); see also, Hiroe Ishihara & Unai Pascual, *Social Capital in Community Level Environmental Governance: A Critique*, 68 ECOLOGICAL ECON. 1549-1562 (2009).

¹⁷³ Ramana Nanda & Jesper B. Sorensen, *Workplace Peers and Entrepreneurship*, HARV. BUS. SCH. ENTREPRENEURIAL MGMT. (Working Paper No. 08-051, 2009).

¹⁷⁴ *Id.* In this sense, market relationships serve as a substitute for community ties and are thus a significant equalizer.

¹⁷⁵ Jasjit Singh, *Collaboration Networks as Determinants of Knowledge Diffusion Processes*, 51 MGMT. SCI. 756-770 (2005).

¹⁷⁶ Orly Lobel, *The Four Pillars of Work Law*, 104 MICH. L. REV. 1539 (2006).

¹⁷⁷ P. Marsden & N. Friedkin, *Network Studies of Social Influence*, 22 SOC. METHODS AND RES. 127 (1993).

network of inventors is dense, it will significantly increase the number of future inventions coming out of that region.¹⁷⁸ The more people in contact, the more productive each member of that network. Dense metropolitan areas enjoy a significant rise in the number of patents *per capita* when compared to the number of patents per capita in areas that are less dense.¹⁷⁹ Geographic density of creative ventures provides a space for professional meetings, face-to-face interactions, and long-term social connections. As the flow of human capital increases the density of networks and facilitates the diffusion of complex information, the quality of the knowledge network itself improves. The loss that stems from controlling human interactions and flow is therefore different, and indeed greater than the formal knowledge that any single individual may possess.¹⁸⁰

C. Motivational & Disruptive Knowledge

In the new knowledge economy, human capital has become a premier resource that gives companies their competitive edge. And yet, human capital is not a static resource in the way real estate or building materials serve a construction company. Human capital is both a resource and a living subject who makes constant judgments, decisions, and choices about the quantity and quality of outputs. Put differently, human capital is a resource with built-in motivation. Quite intuitively, non-competes, trade

¹⁷⁸ Morten T. Hansen, *The Search-Transfer Problem: The Role of Weak Ties in Sharing Knowledge Across Organization Subunits*, 44 ADMIN. SCI. Q. 82-111 (1999).

¹⁷⁹ Gerald Carlino et al., *Matching and Learning in Cities: Urban Density and the Rate of Invention* 17-23 (Fed. Res. Bank of Phila., Working Paper No. 4-16/R, 2005).

¹⁸⁰ Relational and networked knowledge is related to the concept of social capital, which is distinct from intellectual capital. While intellectual capital (or formal knowledge) can be transferred through education, social capital is embedded in our daily interactions. See generally, James S. Coleman, *Social Capital in the Creation of Human Capital*, 94 AM. J. SOC. 95 (1988); Pierre Bourdieu, *The Forms of Capital*, in *Handbook of Theory and Research for the Sociology of Education*, 241 (John Richardson ed. 1986). Bourdieu defined social capital as the aggregate resources that are linked to a network. Coleman defined social capital functionally as anything that supports productive activity through social norms, reciprocity and trust. Indeed, there are rich debates between economists and sociologists on the definition of social capital as a form of capital or as a social structure. See, Kenneth Arrow, *Observations on Social Capital*, in *Social Capital: A Multifaceted Perspective*, 3 (Partha Dasgupta and Ismail Serageldin ed., 1999); Robert Solow, *Notes on Social Capital and Economic Performance*, in *Social Capital: A Multifaceted Perspective*, 6 (Partha Dasgupta and Ismail Serageldin ed., 1999); Ben Fine, *Social Capital versus Social Theory: Political Economy and Social Science at the Turn of the Millennium* (2001). Importantly for this article, relational and networked knowledge, or the sociological concept of social capital, is viewed as a functional structure that is one aspect of human capital.

secrets, and other controls over human capital, which strip individuals from ownership over their skills, knowledge, experiences, and future competitiveness, may decrease the drive to effectively employ one's cognitive energies. In other words, the new cognitive property not only commodifies intangible knowledge beyond the bounds of intellectual property, it changes the quality of that knowledge. In general, employees are discouraged from investing in their human capital when inter-firm competition is less likely to occur.¹⁸¹ Motivation is also reduced when employees whose human capital is propertized have fewer prospects to receive credit and attribution for their work, reduced expectations of profit from their innovation, and fewer entrepreneurial opportunities.¹⁸² The background rules of ownership over the human capital alter the very quality of the resource at stake.

In recent behavioral studies conducted with my collaborator On Amir, we set up an experimental lab designed to identify the effect of human capital controls and contractual arrangements on performance and motivation. In our study, participants in an e-lab experiment were asked to perform tasks. Those participants who were asked to sign human capital restrictions on future employment in our online job market performed worse on their tasks and were more likely to quit before the end of the experimental. The findings suggest that participants bound by other post-employment restrictions are less motivated to stay on task than those not bound.¹⁸³ Recent field data supports these experimental findings, showing that, contrary to traditional economic analysis, companies invest *less* in research and human capital development when non-competes are strongly enforced, providing further evidence that investment decisions are affected by workers themselves in their assessments on their own ability to move to, or to be recruited by, a different company.¹⁸⁴ These findings suggest that the new cognitive property, which strips employees from ownership over their human capital, not only restricts mobility and knowledge flow but also

¹⁸¹ On Amir & Orly Lobel, *How Noncompetes Stifle Performance*, HARV. BUS. REV. 2014; On Amir & Orly Lobel, *Driving Performance: A Growth Theory of Non-Compete Law*, STAN. TECH. L. REV. (2013).

¹⁸² Christopher Sprigman, Christopher Buccafusco, & Zachary Burns, *What's A Name Worth? Experimental Tests of the Value of Attribution in Intellectual Property*, 93 B.C. L. REV. 1 (2013).

¹⁸³ Amir & Lobel, *supra* note 181.

¹⁸⁴ Mark J. Garmaise, *Ties that Truly Bind: Noncompetition Agreement, Executive Compensation, and Firm Investment* 27 J.L. ECON. & ORG. 375-398 (2011) ("non-competes bind human capital to firms, and in doing so they change the quality of that capital").

reduces incentives to innovate. .

New economic models further help explain why people are more motivated to invest in their own human capital when they do not know the precise job that they will eventually hold.¹⁸⁵ Companies too are incentivized to invest in technology and skill development without knowing whom they will continue to hire.¹⁸⁶ MIT economist Daron Acemoglu describes the fertile conditions of uncertainty as forming a virtuous circle of human capital development: when workers invest more in their human capital, businesses will invest more in innovation because of the prospect of acquiring good talent. Consequently, workers will invest more in their human capital as they may end up in one, or several, of these companies. In other words, in Acemoglu's model, the likelihood of finding good employees creates incentives for overall investments in human capital. Yet, empirical research shows that in most places there is an under-investment in human capital.¹⁸⁷ The trend toward expanding cognitive property can help explain this under-investment: the new cognitive property not only impedes the flow of knowledge and reduces the positive effects of market uncertainty, but also undercuts the likelihood of being able to employ good employees. Consequently, the incentives and motivation to invest in human capital are lowered.

Finally, the background rules that shape ownership and control over human capital also impact the degree to which knowledge can be disruptive and used to generate new ideas. Phenomena like *Not Invented Here* (NIH), an institutional pathology that prevents groups from benefiting from outside knowledge and *groupthink* – where cohesive groups overlook important alternatives because of the desire for consensus and conformity - are mitigated by the flow of “new blood” to the organization.¹⁸⁸ Even in today's globalized market, research shows that firms, often to their detriment, overlook outside ideas and solutions simply from a not-invented-here mindset and because groups become entrenched in traditional methods.¹⁸⁹ This counter-productive lock-in happens in greater frequency where there is little turnover and companies are overly stable. In one study, teams with

¹⁸⁵ Daron Acemoglu, *Patterns of Skill Premia*, 70 REV. OF ECON. STUD. 199-230 (2003).

¹⁸⁶ *Id.*

¹⁸⁷ Daron Acemoglu & David Autor, *What Does Human Capital Do?*, J. OF ECON. LIT. (forthcoming 2012).

¹⁸⁸ Ajay Agrawal et al., *Not Invented Here? Innovation in Company Towns* (Nat'l Bureau of Econ. Research, Working Paper No. 15437, 2009).

¹⁸⁹ Ralph Katz & Thomas J. Allen, *Investigating the Not Invented Here (NHI) Syndrome*, 12 R&D MGMT. 7-19 (2007).

little turnover became progressively less productive.¹⁹⁰ Firms in remote locations with stable personnel are more likely to draw upon the inventions of their own firm and to draw upon the same set of prior inventions compared to firms in more diverse locations.¹⁹¹ From this perspective, cognitive property hinders institutional openness, the absorptive capacity of firms, and their ability to identify and make use of good ideas. The rich texture of knowledge, an economic resource, is diminished from both the motivational and transformative perspectives.

III. THE THIRD ENCLOSURE MOVEMENT

A. From Monopoly to Property

*The law locks up the man or woman
Who steals the goose from off the common
But leaves the greater villain loose
Who steals the common from off the goose.*¹⁹²

In 1964, Charles Reich wrote “the institution called property guards the troubled boundary between individual man and the state.”¹⁹³ Reich defined “new property” as intangibles like income, benefits, occupational licenses and franchises that were all governed by the legal rules and directed the distribution of wealth in society. Reich argued that the new reliance of these forms of wealth, highly dependent on legal regulation, has become akin to traditional forms of property. In the past few decades, reliance on legal regimes that create wealth in intangibles has risen dramatically. Today, as law continues to delineate the boundaries between individual, market, and state, we face a new propertization of the building blocks of society: human knowledge in all its facets.

Merely a decade ago, James Boyle warned of the *Second Enclosure Movement*, referring to this movement as the legal enclosure of the “intangible commons of the mind” by a rapid expansion of intellectual

¹⁹⁰ *Id.*

¹⁹¹ Ajay Agrawal et al., *Not Invented Here? Innovation in Company Towns* (Nat’l Bureau of Econ. Research, Working Paper No. 15437, 2009).

¹⁹² English folk poem, cited in Boyle *supra* note 194 at 33.

¹⁹³ Charles A. Reich, *The New Property*, 73 YALE L.J. 733, 733 (1964).

property rights.¹⁹⁴ Boyle was warning against the expansion of copyright and patent protections, the *outputs* of innovation and human creativity. The new cognitive property expands propertization of the intangibles of the mind beyond the heated IP wars, which have shaped the last two decades. While controversies around the expansion of IP continue, we now face the Third Enclosure Movement, the under-the-radar enclosure over the *inputs* of knowledge—the creation of property over human capital. Knowledge, experience, skill, creativity, and network are all becoming subject to commodification and litigation.

To understand these developments it is illuminating to understand the history of IP, which is characterized by a shift from the lens of antitrust to the lens of property. If in the past, patent and copyright protections were understood as state sanctioned partial monopolies to reward invention, now IP is understood as market assets protected by legal rules. In his canonical 1935 Realist essay, *Transcendental Nonsense and the Functional Approach*, Felix Cohen lamented the forgotten logic of IP law designed to aid market competition and instead adopted a formalist view of IP as property:

Increasingly, the courts have departed from any such theory and have come to view this branch of law as a protection of property rights in diverse economically valuable sale devices.¹⁹⁵

Cohen warned that courts and scholars have become trapped in a vicious circle of labeling IP as a “thing of value” and thereby as property, while refusing to admit any extralegal facts to challenge this entrenched conception.¹⁹⁶ Cohen explained the inherent circularity in the conception of intangible goods as property:

It purports to base legal protection upon economic value, when, as a matter of actual fact, the economic value of a sales device depends upon the extent to which it will be legally protected. . . The

¹⁹⁴ James Boyle, *The Second Enclosure Movement and the Construction of Public Domain*, 66 LAW & CONTEMP. PROBS. 33-75 (2003). The first enclosure movement concerned the expansion of real property and the debates surrounding the effect of private property on the social contract and wealth distribution. See generally, JAMES YELLING, COMMON FIELD AND ENCLOSURE IN ENGLAND 1450-1850 (1977).

¹⁹⁵ Felix S. Cohen, *Transcendental Nonsense and the Functional Approach*, 35 COLUM. L. REV. 809 (1935).

¹⁹⁶ *Id.*

circularity of legal reasoning in the whole field of unfair competition is veiled by the ‘thingification’ of property.¹⁹⁷

William Fisher similarly described the coming of age of IP rights as a shift from the field of antitrust with the terminology of “monopolies” to the field of property with the terminology of “rights.”¹⁹⁸ As Fisher suggested, the currency of the term, monopoly, “derived partly from --and helped to reinforce -- a substantive position: like other “monopolies,” patents and copyrights were dangerous devices that should be deployed only when absolutely necessary to advance some clear public interest.”¹⁹⁹ By the twentieth century however, “framing arguments in terms of property rights became increasingly common” in patent, copyright and trademark disputes. Still, the term itself, *intellectual property*, was rare until the second half of the twentieth century. Under contemporary law however, “the use of the term “property” to describe copyrights, patents, trademarks, etc. conveys the impression that they are fundamentally “like” interests in land or tangible personal property -- and should be protected with the same generous panoply of remedies.”²⁰⁰ Unsurprisingly then, courts have increasingly been intent on construing misappropriation of IP as outright theft. In a recent copyright case, a federal district court began its opinion about rap music recalling the biblical statement: “Thou shalt not steal’ has been an admonition followed since the dawn of civilization.”²⁰¹

This ever-expanding lens of property into the intangibles of the mind is now reaching the next frontier, targeting not only the outputs of innovation but also people themselves. Once knowledge in all its forms is labeled property, its unauthorized use is deemed theft. As we have seen above, the same lens of theft and property has become increasingly strong in human capital law cases and legislation, including both the expansion of human capital controls and the increased criminalization of trade secrets. A striking illustration of this expansion is the use of the term piracy in relation to human capital. The term “piracy” has been a significant metaphor in

¹⁹⁷ *Id.* at 812.

¹⁹⁸ William W. Fisher III, *The Growth of Intellectual Property: A History of Ownership of Ideas in the United States* 22 (1999) at <http://cyber.law.harvard.edu/people/ffisher/iphistory.pdf>. See also, Michael A. Carrier, *Cabining Intellectual Property Through a Property Paradigm*, 54 DUKE L.J. 1 (2004); Edward C. Walterscheid, *Patents and The Jeffersonian Mythology*, 29 J. MARSHALL L. REV. 269 (1995).

¹⁹⁹ *Id.*

²⁰⁰ *Id.*

²⁰¹ *Grand Upright Music Ltd. v. Warner Bros.*, 780 F.Supp. 182 (S.D.N.Y. 1991).

defense of strong IP protections. Unsurprisingly, as propertization shifts beyond specific information and into the zone of human capital, claims about piracy are carried over into battles to control cognitive capacity. For example, a recent article describes employees, who dare to dream of becoming entrepreneurs despite signing non-competes, as modern day pirates. The article quotes an attorney who explains the difference between these new pirates and the old swashbucklers:

The owner of a merchant vessel clearly knows when his ship comes under pirate attack. Buccaneers armed with cutlasses board his vessel. In the workplace, employee pirates steal an employer's treasure -- trade secrets, proprietary information and customer relationships. Unlike sea pirates...this theft is often carried out by trusted, supposedly honest employees.²⁰²

The new pirates are stealing their human capital away from the firm. In 1414, the earliest known case on non-competes, a clothes dyer in medieval England attempted to prevent a former employee from competing in town for six months.²⁰³ The court threatened to imprison the employer for initiating such a frivolous lawsuit that restrained trade. If under the lens of antitrust, harm is done by he who attempt to restrain competition and the use of experience and skill in markets, under the lens of property, the dramatically evolved law of human capital views he who harms is the one who resists such restraints.

B. Understanding Harm

Rather than equating employees with pirates, the challenge of our coming decades is to rid adjudication from the strains of a property paradigm and to urge serious analysis of the implications of economic arrangements surrounding human capital. Debates about human capital law have been rather thin and traditionally tracked the general intellectual property debate. The long unchallenged assumption has been that human capital controls are necessary because otherwise employers would underinvest in employee training.²⁰⁴ In other words, the move toward cognitive property is necessary to incentivize corporate investment.²⁰⁵ Under the

²⁰² Lynne Curry, *Keep an Eye Out for Pirate Employees*, ANCHORAGE DAILY NEWS, Feb. 23, 2014.

²⁰³ Harlan M. Blake, *Employee Agreements Not to Compete*, 73 HARV. L. REV. 625 (1960).

²⁰⁴ GARY S. BECKER, HUMAN CAPITAL: A THEORETICAL AND EMPIRICAL ANALYSIS, WITH SPECIAL REFERENCE TO EDUCATION (2d ed. 1975).

²⁰⁵ Glick et al., *supra* note 1; Rubin & Shedd, *supra* note 1; Eric A. Posner et al.,

traditional analysis, externalities are a type of market failure. Just as tort liability aims to internalize negative externalities, the harm to others, knowledge monopolies are viewed as necessary to internalize positive externalities, or spillovers, that flow from innovation.²⁰⁶

The view that IP law is necessary to allow firms to internalize positive externalities has been challenged in recent years. Scholars such as Mark Lemley and Brett Frischmann have argued that in the context of intellectual property, internalization is not a desirable goal and that spillovers actually encourage *greater* innovation.²⁰⁷ In human capital law, these questions have remained under-investigated despite mounting evidence that the challenge to conventional economic reasoning in this context is even more compelling.

Contemporary research suggests that human capital spillovers should not be understood as a market failure, but as a constitutive part of the market itself. In 1813 Thomas Jefferson wrote, “If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea.”²⁰⁸ And yet, knowledge, information, and ideas have increasingly become the subject of exclusive property. At the same time, overwhelmingly, new research points to a clear connection between human capital flow and economic growth. As the previous sections have shown, human capital law has developed as a patchwork, consisting of important jurisdictional variations. Recent empirical studies in innovation exploit these natural experiments in human capital law.²⁰⁹ In several recent studies, examining dozens of regions across the United States, human capital restrictions have been found to impede not only job mobility but also innovation and entrepreneurship.²¹⁰ Mobility in the labor market is

Investing in Human Capital: The Efficiency of Covenants Not to Compete (University of Chicago Law & Economics, Olin Working Paper No. 137; University of Virginia Law & Economics Research Paper No. 01-08, 2004).

²⁰⁶ Mark A. Lemley & Brett Frischmann, *Spillovers*, 100 COLUM. L. REV. (2006).

²⁰⁷ *Id.*

²⁰⁸ Thomas Jefferson to Isaac McPherson 13 Aug. 1813 *Writings* 13:333--35.

²⁰⁹ Matt Marx, Deborah Strumsky, & Lee Fleming, *Mobility, Skills, and the Michigan Non-compete Experiment*, 55 MGMT. SCI. 875-889 (2011).

²¹⁰ Sampsa Samila & Olav Sorenson, *Non-Compete Covenants: Incentives to Innovate or Impediments to Growth*, 57 MGMT. SCI. 425 (2010); Paul Almeida & Bruce Kogut, *Localization of Knowledge and Mobility of Engineers in Regional Networks*, 45 MGMT. SCI. 905-917 (1999); Lee Fleming & Koen Frenken, *The Evolution of Inventor Networks in the Silicon Valley and Boston Regions*, ADVANCES IN COMPLEX SYS., 57-71 (2007); Jiang He & M. Hosein Fallah, *Is Inventor Network Structure a Predictor of Cluster Evolution?*, J. TECH. FORECASTING & SOC. CHANGE (2009).

correlated with increased competition, deployment of skills in the market, densification of knowledge networks, and knowledge spillovers.²¹¹ Running in direct contrast to the simplified predictions that more controls increase growth and innovation, empirical findings suggest that firms increase their R&D efforts and expenditures when employee turnover and knowledge spillovers increase.²¹² New models of economic growth help link human capital flows and regional success.²¹³ For many years, economists have attempted to answer a key puzzle: why similarly situated regions vary so dramatically in their growth rates. Under endogenous growth theory, economic growth relies not simply on competitive win-lose production, but on processes of positive spillovers, in which knowledge is transferred within industries and regions. Endogenous growth theory favors investment in human capital as the central ingredient for economic success. Mobility triggers an upward cycle to create agglomeration economies.²¹⁴ Regions that encourage human capital mobility are also able to attract more human capital from other regions.²¹⁵ High employee turnover, regional human capital concentration, and density of professional networks all contribute to economic growth.²¹⁶

Instead of the simplified prediction that more controls over human capital will lead to more investment in human capital, the richer analysis of the effects of cognitive property coupled with the empirical findings suggests that the increased propertization of knowledge can have devastating effects. Drawing on the terms of commons/anti-commons debates in property law, the underuse of people – the expansion of cognitive

²¹¹ Tomas Havranek & Zuzana Irsova, *Estimating Vertical Spillovers from FDI: Why Results Vary and What the True Effect Is*, 85 J. INT'L ECON. 2 (2011); David B. Audretsch & Maryann P. Feldman, *R&D Spillovers and the Geography of Innovation and Production*, 86 AM. ECON. REV. 3 (1996).

²¹² Paul Almeida & Bruce Kogut, *Localization of Knowledge and the Mobility of Engineers in Regional Networks*, 45 MGMT. SCI. 905, 915 (1999); Georg von Graevenitz, *Spillovers Reconsidered: Analyzing Economic Welfare Under Complementarities in R&D*, 16 (Governance and the Efficiency of Economic Systems, Discussion Paper No. 29, 2004), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=625142.

²¹³ Paul M. Romer, *Increasing Returns and Long-Run Growth*, 94 J. POL. ECON. 1002-1037 (1986); Robert Lucas, *Why Doesn't Capital Flow from Rich to Poor Countries*, 80 AM. ECON. REV. 92-96 (1990).

²¹⁴ Paul M. Romer, *Endogenous Technological Change*, 98 J. POL. ECON. 71 (1990); Paul M. Romer, *The Origins of Endogenous Economic Growth*, 8 J. ECON. PERP. 3 (1994).

²¹⁵ CHARLES JONES, HUMAN CAPITAL, IDEAS AND ECONOMIC GROWTH (2006).

²¹⁶ Nicholas Bloom et al., *Identifying Technology Spillovers and Product Market Rivalry*, NATURAL BUREAU OF ECON. RES. (2007).

property – is perhaps the greatest tragedy of all.²¹⁷ In blunt economic terms, the deadweight loss from controls and restrictions over human capital is the person herself who is prevented from using her talent, skill, and passion. Minds are made to suppress ideas, skill remains untapped, knowledge is cut up into small fragments, and people risk their very liberty to move through their career.

Traditionally, intellectual property regimes are purposely weak. Partiality is built into the law. Patent and copyright protections are granted for a limited time and each have thresholds for receiving the right and defenses for certain uses. These laws also guarantee that the underlying information is disclosed to the public as part of the bargain of exclusivity. Looking through the lens of positive externalities, or spillovers, helps explain why these built-in weaknesses are a feature, not a flaw. IP laws are meant to promote progress, “not the creation of private fortunes for the owners of patents.”²¹⁸ In human capital law, the bargain of a limited monopoly in return for disclosure is subverted. There is no public disclosure of secrets or cognitive ability that is fenced.

In delineating IP rights, the courts have been charged with policing the boundaries between proprietary information and knowledge that constitutes the public domain. Courts regularly refuse to enforce contracts that attempt to restrict information that belongs in the public domain. The Supreme Court has stated that information “which is in the public domain cannot be removed therefrom by action of the States.”²¹⁹ The Court has also held that the Copyright and Patent Clause of the Constitution prohibited Congress from recognizing rights in the sub-copyrightable and sub-patentable materials.²²⁰ The Supreme Court has warned that state trade secrecy law should not encourage secrecy over patenting, for example by prohibiting reverse engineering.²²¹ In the context of patent licensing, the courts have held that states are prohibited from allowing tort claims to protect unpatented information, enforcing agreements to license patents after their

²¹⁷ Michael Heller, *The Tragedy of Anti-Commons*, 111 HARV. L. REV. 621 (1998).

²¹⁸ *Motion Picture Patents Co. v. Universal Film Mfg. Co.*, 243 U.S. 502, 511 (1917); *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617, 626 (2008); *Bilski*, 130 S. Ct. at 3252.

²¹⁹ *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 484 (1974).

²²⁰ U.S. Const. art. I, § 8, cl. 8; *Feist Publications, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 347-48 (1991).

²²¹ *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 161 (1989); *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 485 (1974).

expiration or to enforce royalty agreements for invalidated patents.²²² As the previous sections have explored, this wisdom has not been applied to the under-the-radar development of human capital law, which proptertizes knowledge that IP law has placed in the public domain.

C. The Scorpion Always Stings

While proptertizing knowledge – tacit, relational, networked, motivational and disruptive – out of the public domain is in the market at large, the negative effects are also highly patterned. Litigation against former employees is “fueled by emotion as much as financial desire.”²²³ On the first page of Michael Lewis’ new book, *Flash Boys*, Lewis writes about Sergei Aleynikov’s imprisonment:

I’d thought it strange, after the financial crisis, in which Goldman had played such an important role, that the only Goldman Sachs employee who had been charged with any sort of crime was the employee who had taken something from Goldman Sachs.²²⁴

The new cognitive property benefits firms with superior resources. As Graves and Diboise note, “courts do not recognize that plaintiff’s trade secret claims are too often created after the fact by attorneys to try to trap a former employee, and not so valuable that the plaintiff had previously recorded them as company intellectual property and guarded them as secret before the employee departed.”²²⁵ In general, newer and smaller firms are disadvantaged in IP litigation.²²⁶ Uncertain legal boundaries lead to over-enclosures of information by those with fewer resources, who thereby seek to avoid risk under conditions of unpredictability.²²⁷ In human capital law,

²²² *Brulotte v. Thys Co.*, 379 U.S. 29 (1964); *Lear Inc. v. Adkins*, 395 U.S. 653 (1969); Mark A. Lemley, *Beyond Preemption: The Law and Policy of Intellectual Property Licensing*, 87 CAL. L. REV. 111 (1999).

²²³ William Lynch Schaller, *Jumping Ship: Legal Issues Relating to Employee Mobility in High Technology Industries*, 17 LAB. LAW. 25, 70 (2001).

²²⁴ Michael Lewis, *Flash boys: A Wall Street Revolt 1* (2014).

²²⁵ Charles Tait Graves & James A. Diboise, *Do Strict Trade Secret and Non-Competition Laws Obstruct Innovation?*, 1 ENTREPRENEURIAL BUS. L.J. 323, 339 (2007).

²²⁶ Rajshree Agarwal, Martin Ganco & Rosemarie Ziedonis, *Reputations for Toughness in IP Enforcement: Effects on Knowledge Spillovers Through Employee Mobility*, 30(13) STRATEGIC MGMT. J., 1349-1374 (2009). See also, Larson E., *Modem Operandi: In High-Tech Industry, New Firms Often Get Fast Trip to Courtroom*, WALL ST. J. (1984) (founders of start-ups are the most costly victims of intellectual property lawsuits).

²²⁷ James Gibson, *Risk Aversion and Rights Accretion in Intellectual Property Law*, 116

these issues are exacerbated by the profound inherent asymmetries in reserves and information.²²⁸ As we have seen, human capital law is comprised from a nebulous set of rules which create uncertainty and chill the prospects of competition. The uncertainty and ad hoc balancing which characterizes human capital law incentivizes firms to deliberately draft human capital clauses broadly and vaguely. Far more than in the context of IP agreements between two companies, in the field of human capital law, employment contracts are typically boilerplate and negotiations are rare.²²⁹ In a recent Delaware case, a court enforced a clickwrap boilerplate non-compete agreement that the employee received only as an electronic copy, buried as part of an equity compensation contract.²³⁰ The employee signed the contract by clicking “accept” on her computer screen. The court explained that the way the employer sought agreement to the post-employment restrictive agreement, “although certainly not the model of transparency and openness with its employees, (the post-employment restrictive contract) was not an improper form of contract formation.”²³¹

New research on predation and strategy demonstrates how corporate reputation for “toughness” in patent enforcement suppresses employee mobility. As firms signal that they are willing to be litigious against former employees, “employee-inventors become less likely to join or form rival companies.”²³² The research demonstrates how litigation against former employees reduces the expected value *all employees*, not merely the employee who actually left and were sued, have in pursuing external professional options.²³³ In the context of litigation against a former

YALE L.J. 882, 882 (2007) (“Intellectual property’s road to hell is paved with good intentions. Because liability is difficult to predict and the consequences of infringement are dire, risk-averse intellectual property users often seek a license when none is needed”).

²²⁸ Albert Choi & George Triantis, *Strategic Vagueness in Contract Design: The Case of Corporate Acquisitions*, 119 YALE L.J. 848 (2010); Albert Choi & George Triantis, *The Effect of Bargaining Power on Contract Design*, 98 VA. L. REV. 1665 (2012); Albert Choi & George Triantis, *Market Conditions and Contract Design: Variations in Debt Contracting*, 88 N.Y.U. L. REV. 51 (2013).

²²⁹ Rachel Arnow-Richman, *Cubewrap Contracts and Worker Mobility: The Dilution of Employee Bargaining via Standard Form Noncompetes*, MICH. ST. L. REV. 963 (2006).

²³⁰ *Newell Rubbermaid Ind. v. Storm*, C.A. No. 9398-VCN (Del Ch. Mar. 27, 2014).

²³¹ *Id.* In another recent case, an Ohio federal court enforced a non-competition agreement that the employee had never signed. *See Pharmacia Corp. v. McElyea*, 1:14-CV-00774, 2014 WL 1876271 (N.D. Ohio May 9, 2014).

²³² Rakshree Agarwal, Martin Ganco & Rosemarie Ziedonis *Reputations for Toughness in IP Enforcement: Effects on Knowledge Spillovers Through Employee Mobility*, 30(13) STRATEGIC MGMT. J., 1349-1374 (2009).

²³³ Martin Ganco, Rosemarie Ziedonis & Rajshree Agarwal, *More Stars Stay, But the*

employee turned competitor, “even if the costs of being litigious in a particular dispute outweigh the benefits, the deterrence of future knowledge spillovers can justify the investment.” In other words, human capital litigation risks being designed precisely to deter future mobility by other employees. The findings suggest that a firm’s patent litigiousness significantly lowers the dissemination of technical knowledge otherwise predicted to flow from employee mobility, leading the researchers to warn:

The vitality of innovative regions, such as Silicon Valley, is widely attributed to active job hopping by skilled workers and the corresponding diffusion of technological know-how and discoveries across firm boundaries. If reputations for IP toughness curb the inter-firm dissemination of technological knowledge, particularly to start-ups, regional dynamics could be threatened.²³⁴

The new cognitive property creates a myriad of penalties on communication that lead to a slower diffusion of knowledge, with a special harm to entrepreneurship and the formation of start-ups, which are vital for the healthy growth of markets.²³⁵ For large established firms, excluding employees from certain innovative activities mitigates the risks of cognitive property suits. New employers who desire to comply and not risk the civil and criminal implications of using cognitive property are likely to go through inefficient and disruptive inquisitive processes, including the exclusion of employees from the inventive activities in which they are most experienced. To smaller and newer firms however, these divisions, which are greatly inefficient in any firm, are impossible. Larger companies with sufficient legal and financial resources can aggressively drive out competition even when their legal claims rest on weak grounds.²³⁶

Brightest Ones Still Leave: Job Hopping in the Shadow of Patent Enforcement (Working Paper September 2013), available at <http://www.rhsmith.umd.edu/faculty/rajshree/testing/research/Ganco%20et%20al%20Job%20Hopping%20Oct%2017%202013.pdf>.

²³⁴ Rajshree Agarwal, Martin Ganco & Rosemarie Ziedonis, *Reputations for Toughness in IP Enforcement: Effects on Knowledge Spillovers Through Employee Mobility*, 30(13) STRATEGIC MGMT. J., 1349-1374 (2009) at 1368.

²³⁵ Steven Klepper & Sally Sleeper, *Entry by Spinoffs*, 51 MGMT. SCI. 1291 (2005); Gordon Moore & Kevin David, *Learning the Silicon Valley Way*, in BRESNAHAN AND GAMBARDILLA, BUILDING HIGH-TECH CLUSTERS: SILICON VALLEY AND BEYOND (Cambridge 2004).

²³⁶ Patrick Bolton & David Scharfstein, *A Theory of Predation Based on Agency Problems in Financial Contracting*, 80 AM. ECON. REV. 93 (1990).

Litigation is strategic when it is motivated by and thrives from the uncertainty of claims, high cost of litigation, and asymmetry in the stakes faced by the company and the former employees.²³⁷ Even when claims cannot be substantiated, small companies can be driven out of markets.²³⁸ In general, litigation over IP and human capital, even in the absence of structural penalties on target defendants, has the power to create sufficient uncertainty to kill a venture.²³⁹ Thus, under the new cognitive property, employees who face a choice whether to leave to form a new company or to join an established company are likely to consider the potential costs of legal liabilities and decide against entrepreneurship.²⁴⁰

The new cognitive property thus advantages firms with superior resources. Asymmetrical litigiousness directed at employees who wish to leave an employer operates similarly to non-competes. Human capital law – with the rise in non-competes, expansion of the type of confidential information as protected trade secrets, expansion of innovation pre-assignment and its aggressive enforcement – have traditionally striven to protect freedom of contract and to encourage businesses’ initial incentives to invest in innovation.²⁴¹ New research challenges us to rethink our approach to these regimes. The evidence is nearly universal. Overall, excessive controls over mobility and inventiveness are harmful to careers, regions, and innovation. The harm is not simply caused by the aggregate reduction in mobility, knowledge flow, and network richness, but is also created by the motivational and behavioral aspects of creative individuals as they interact with their environment. In particular, it stymies the entry of new competitors into the market and suppresses the spirit of entrepreneurship, vital to any economy.

²³⁷ As such, litigation by companies against their former employees has similar characteristics of trolling in patent and copyright litigation. See Mark A. Lemley & A. Douglas Melamed, *Missing the Forest for the Trolls*, 113 COLUM. L. REV. 2117 (2013).

²³⁸ Rajshree Agarwal, Martin Ganco & Rosemarie Ziedonis, *Reputations for Toughness in IP Enforcement: Effects on Knowledge Spillovers through Employee Mobility*, 30(13) STRATEGIC MGMT. J., 1349-1374 (2009); Jarnal Shamsie, *The Context of Dominance: An Industry-Driven Framework for Exploiting Reputation*, 24(3) STRATEGIC MGMT. J. 199-206 (2003).

²³⁹ Alexander E. Silverman, *Symposium Report: Intellectual Property Law and the Venture Capital Process*, 5 HIGH TECH. L. J. 157 (1990).

²⁴⁰ Mary S. Koen, *Survey of Small Business Use of Intellectual Property Protection: Report of a Survey Conducted by MO-SCI Corporation for the Small Business Administration*. (Rolla, Mo.: MO-SCI Corp., 1990).

²⁴¹ Orly Lobel, *Intellectual Property and Restrictive Covenants*, in ELGAR ENCYCLOPEDIA OF EMPLOY’ T L. AND ECON. (Kenneth G. Dau-Schmidt et al. eds., 2009).

CONCLUSION

Contemporary human capital law is a mongrel amoebic creature that has grown under the radar for too long. Through doctrine and contract, the rise of the new cognitive property removes not only the outputs of innovation but also its inputs, including: skills, experience, tacit knowledge, professional relationships, motivation and potential from the public domain. The heightened significance of human capital as a highly valuable resource along with dramatic changes in labor markets has effectuated record numbers of disputes and conflicts. In the twenty-first century, human capital law has become one of our most acute collective challenges. This article has argued that the rise of cognitive property creates too many walls, enclosing vital knowledge and creative potential. Restrictions on the flow of knowledge, through non-competes, non-dealings agreements, trailer clauses, and pre-innovation clauses, contaminate market flows and diminish both the incentives to move efficiently in the market and the incentives to innovate. For knowledge to flow, for networks to remain dense, for motivation to keep innovation high, and for new blood to disrupt stagnated paths, the law must upend the rapid rise of the new cognitive property and restore the balance between protected forms of information and a viable public domain.