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Innovation Agents

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Abstract

The standard narrative of entrepreneurship is one of self-employed creative individuals working out of their garage or independently owned start-up companies. Intrapreneurship—where employees are responsible for being alert to new opportunities inside firms—is another model for developing innovations. Relatively little is known, however, about the latter process through which large, complex firms engage in groundbreaking corporate entrepreneurship.

This Article's focus is on these types of innovation agents. It provides a thorough account of the positive and negative spillovers of intrapreneurial firms while making the following key points: First, intrapreneurial companies utilize their economies of scale, scope, and age to deliver innovations to the masses. They transform ideas, labor, and raw materials into tangible assets that can be traded in the market. Second, in doing so they offer individual entrepreneurs opportunities to capitalize their knowledge. Sustaining entrepreneurs' prospects for supra-competitive profits is the main engine that motivates the latter to invest in discoveries in the first place. Lastly, intrapreneurial firms also serve as

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greenhouses for entrepreneurship through the migration of their own talented labor in the market.

While these spillovers have tremendous societal benefits, they can also introduce harms. First, the race for the next breakthrough might result in anticompetitive behavior by rivals who conspire with employees-intrapreneurs to leave their firms and take with them confidential information. Second, intrapreneurs often aspire to undertake their own independent journey. In so doing, they leave secure positions and high salaries while carrying valuable knowledge and expertise. This, in return, often prompts intrapreneurial firms to act opportunistically and lock-in or lock-out intrapreneurs in restrictive and wasteful arrangements. As a solution, this Article proposes ways law can balance the positive and negative spillovers of intrapreneurship and ways the tax system can help achieve such result.

Keywords: Entrepreneurs, Intrapreneurship, Internal Corporate Venturing, Innovation, Agents, Spillovers, Externalities, Experience, Age, Scope, Economic Growth, Competition, Non-Competes, Non-Disclosure, Anti-Poaching.

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I. Introduction

> If you want to go quickly, go alone. If you want to go far, go together.
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> —*African Proverb*

During one Northern California summer day, engineer Anthony Levandowski decided to create a self-driving car start-up.[1] He subsequently contacted executives at Uber's self-driving car project to propose his new idea.[2] Alas, Levandowski was working at Google's self-driving unit, Waymo, when he decided to create his competing venture.[3] He soon formed Ottomotto ("Otto") and resigned from Waymo without prior notice once Uber executives expressed interest in buying his start-up.[4] Uber eventually bought Otto for approximately $680 million and hired Levandowski to lead its self-driving car efforts. Subsequently, other senior employees at Waymo began leaving to join Levandowski at Otto.[5] Waymo discovered a breach in confidential

1. *See* Waymo LLC v. Uber Techs., Inc., No. C 17-00939 WHA, 2017 U.S. Dist. LEXIS 73843, at *5 (N.D. Cal. May 11, 2017) ("In summer of 2015, while working for Waymo, Levandowski told coworker Pierre Yves Droz that it would be nice to create a new self-driving car start-up.").

2. *See id*. at *6–7 (describing emails between Uber executives that reference Levandowski's venture).

3. *See id*. at *6 (describing the actions Levandowski took when creating his start-up).

4. *See id*. at *7–8, 47 nn.21–27 (detailing the underlying facts that led to litigation).

5. Waymo's former employees were Sameer Kshirsagar (a manager who, among other things, negotiated with LiDAR hardware suppliers) and Radu Raduta (then a manufacturing engineer in Waymo's LiDAR department). *Id*. at *8.

information upon investigating the hasty departure of several of its employees and filed a $1 billion lawsuit seeking an injunction against Uber's use of its LiDAR technology.[6]

The District Court for the Northern District of California sided with Waymo and enjoined former Waymo employees from working for Uber on the LiDAR technology project.[7] Uber eventually discharged these employees to validate non-use of Google's trade secrets.[8] While Uber denied using Google's proprietary information in its self-driving technology, Uber apologized for its conduct and settled the suit.[9] It further promised not to use Waymo's technology to develop its driverless cars in the future.[10] Uber CEO Dara Khosrowshahi stated the following when addressing the issue:

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6. *See* Amanda Silvestri, *Waymo, Uber Settle Stolen Trade Secrets Lawsuit for $245 Million*, N.Y. DAILY NEWS (Feb. 12, 2018), https://www.nydailynews.com/autos/news/waymo-uber-self-driving-tech-trade-secrets-lawsuit-settlement-article-1.3815484 (last visited Feb. 13, 2019) (reporting that "[b]efore the fifth day of testimony was set to commence in a San Francisco federal court, Uber agreed to pay $245 million worth of its own shares to Waymo, meaning the Google-owned self-driving company will acquire a 0.34 percent stake in Uber's $72 billion current valuation") (on file with the Washington and Lee Law Review).

7. *See Waymo LLC*, 2017 U.S. District LEXIS 73843, at *46 (granting Waymo's motion for provisional relief).

8. District Court Judge William Alsup ordered Uber to immediately remove Anthony Levandowski from any role or responsibility pertaining to LiDAR, any communication on the subject of LiDAR with any officer, director, employee, agent, supplier, consultant, or customer and instruct the latter in writing of this prohibition and report such breach to the court. *Id*. at *42.

9. *See* Statement by Dara Khosrowshahi, CEO of Uber, *Uber and Waymo Reach Settlement*, UBER NEWSROOM (Feb. 9, 2018), https://www.uber.com/newsroom/uber--waymo--settlement/ (last visited Feb. 13, 2019) [hereinafter Khosrowshahi Statement] ("As we change the way we operate and put integrity at the core of every decision we make, we look forward to the great race to build the future. We believe that race should be fair—and one whose ultimate winners are people, cities and our environment.") (on file with the Washington and Lee Law Review).

10. LiDAR stands for "Light Detection and Ranging," a remote sensing technology that uses light in the form of a pulsed laser to measure distances. *See* Michelle Birdsall, *Google and ITE: The Road Ahead for Self-Driving Cars*, 84 INST. TRANSP. ENGIN. 36, 37 (2014) (exemplifying the usage of LiDAR technology in Google's self-driving project).

> I want to express regret for the actions that have caused me to write this letter. To our friends at Alphabet: we are partners, you are an important investor in Uber, and we share a deep belief in the power of technology to change people's lives for the better. Of course, we are also competitors.11

While this may seem like an ordinary trade secrets case, its circumstances evince a newly emerging practice in innovative conglomerates. Uber was not the first, nor will it be the last, to utilize human capital to its benefit.[12] As more companies realize the importance of technological advancements, their investments in research and development vastly increase.[13] The higher the stakes become, the more conflicts between competitors trickle down to their employees.[14]

Similarly, a technology company, ZeniMax, has been working on a joint venture with Oculus to create a virtual reality headset called Oculus Rift.[15] Along with other ZeniMax engineers headed by John Carmack, Oculus and ZeniMax made improvements to the

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11. *See* Khosrowshahi Statement, *supra* note 9 (noting that Google's parent company Alphabet sued Uber over stealing trade secrets from its subsidiary company Waymo).

12. *See* ZeniMax Media, Inc. v. Oculus VR, Inc., 166 F. Supp. 3d 697, 698 (N.D. Tex. 2015) (describing a situation in which a creator entered into an agreement with ZeniMax then went on to found his own company); E.I. DuPont De Nemours & Co. v. Kolon Indus., Inc., No. 3:09CV58, 2011 WL 1597528, at *1–3 (E.D. Va. 2011) (detailing how a former employee of DuPont was hired by Kolon and subsequently transmitted knowledge of DuPont products to his new employer).

13. *See, e.g.*, *SOI Tax Stats–Corporation Research Credit, Figure B: Number of Research Credit Claimants, by Size of Business Receipts for Tax Years 1990–2013*, IRS, https://www.irs.gov/statistics/soi-tax-stats-corporation-research-credit (last visited Feb. 13, 2019) (reporting that largest claimants of the R&D tax credit in 2013 were firms with over $250 million in receipts) (on file with the Washington and Lee Law Review).

14. *See* Michael Elkon, *4 Steps to Avoid 'Bet-The-Company' Trade Secret Litigation*, LAW 360 (June 5, 2017), https://www.law360.com/articles/930610/4-steps-to-avoid-bet-the-company-trade-secret-litigation (last visited Feb. 13, 2019) (reporting that Uber CEO Travis Kalanick described Uber's efforts to develop a driverless car as critical to its very existence) (on file with the Washington and Lee Law Review).

15. *See* Lucas Matney, *Zuckerberg Testifies in $2 Billion Lawsuit that Oculus Did Not Steal Core VR Tech,* TECHCRUNCH (Jan. 17, 2017), https://techcrunch.com/2017/01/17/zuckerberg-testifies-in-2-billion-lawsuit-that-oculus-did-not-steal-core-vr-tech/ (last visited Feb. 13, 2019) (describing the basic structure of the lawsuit) (on file with the Washington and Lee Law Review).

technological capabilities and design of the virtual reality headset.[16] Oculus showcased the Rift at technology exhibitions where it was met with excitement.[17] ZeniMax entered negotiations with Oculus for an equity interest to compensate them for Oculus's reliance on ZeniMax technology and engineers but negotiations eventually stalled.[18] Shortly afterward, Carmack left his position with ZeniMax and was hired as the Chief Technical Officer at Oculus.[19] About six months later, five other senior employees at ZeniMax abruptly resigned and joined Oculus.[20] The following month, Facebook announced that it would purchase Oculus for $2 billion. ZeniMax sued and was awarded a $300 million verdict in damages for infringement of various intellectual property rights.[21]

These latest sagas emphasize a problem that transcends intellectual property litigation. Innovative knowledge is expensive and transitory.[22] Cutting-edge technology companies constantly face substantial risks from former employees.[23] Throughout their

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16. *See id.* (detailing John Carmack's employment history with both companies).

17. *See* Complaint at 16, ZeniMax Media, Inc. v. Oculus VR, LLC, 166 F. Supp. 3d 697 (N.D. Tex. 2014) (No. 3:14CV01849) (giving an overview of the facts surrounding ZeniMax's participation in the Electronic Entertainment Expo).

18. *See id.* at 92 (noting the defendants' refusal "to enter into serious negotiations").

19. *See id.* at 95 (giving an overview of the facts surrounding Carmack's move to Oculus).

20. *See id.* at 97 ("On February 17, 2014, five additional senior employees of ZeniMax, all of whom worked closely with Carmack at ID Software, simultaneously resigned.").

21. *See* ZeniMax Media Inc. v. Oculus VR Inc., 9 Tex. J.V.R.A. 12:6, 2017 WL 4820007 (N.D. Tex. Feb. 21, 2017) (summarizing the verdict).

22. *See* Mirit Eyal-Cohen, *Through the Lens of Innovation*, 43 FLA. ST. L. REV. 951, 981 (2016) (noting that discoveries in the innovation process are transient due to knowledge spillover and non-rivalrous nature of knowledge discoveries in the innovation process are transient).

23. *See, e.g.*, General Motors Corp. v. Ignacio Lopez de Arriortua, 948 F. Supp. 656 (E.D. Mich. 1996) (denying defendant's motion to dismiss in case where Volkswagen hired executives from competitor car manufacturers and allegedly received twenty boxes of stolen documents from General Motors and Opel); Bloomberg News, *Ex-Employee Pleads Guilty in Taking of Kodak Data*, N.Y. TIMES, Aug. 29, 1997, at D00002 (describing how an employee of thirty years retired from Kodak, started a consulting company, hired sixty former Kodak

employment, engineers and innovators are exposed to competitive knowledge that if revealed, has the potential to damage, or even force the company to shutter its doors. On the other hand, that same innovative knowledge can be useful in promoting independent entrepreneurship with interchanging technologies in other industries and greatly promote innovation. For example, while not a party to the Uber–Google litigation, Lior Ron, one of Otto's co-founders, was a former product lead for Google Maps and former product lead for Motorola Mobility (which was later acquired by Google).[24] When asked why he left Google, Ron replied that he "felt an obligation to bring this technology to society sooner rather than later."[25] Ron continues to lead Otto, which developed into a stand-alone company focused on upending the long-distance trucking industry.[26] He recently developed the app UberFreight that helps vet and approve truck drivers. UberFreight provides drivers with information on nearby available load jobs, calculates distance for their destinations, and even pays them upfront for the drive.[27]

There has been an increase in legal literature regarding who owns human capital that contributes to innovation and growth

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employees, and began to sell Kodak trade secrets).

24. *See* Mark Harris, *The Man Who Built Google's First Self-Driving Car is Now a Trucker*, WIRED (May 17, 2016 12:00 AM), https://www.wired.com/2016/05/the-man-who-built-googles-first-self-driving-car-is-now-a-trucker/ (last visited Feb. 13, 2019) (using a Q&A format with Lior Ron to report on the growth and development of Otto) (on file with the Washington and Lee Law Review).

25. Jack Stewart, *$30K Retrofit Turns Dumb Semis into Self-Driving Robots*, WIRED (May 17, 2016), https://www.wired.com/2016/05/otto-retrofit-autonomous-self-driving-trucks/ (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review).

26. *See* Katy Steinmetz, *Why Self-Driving Trucks May Be the Next Big Thing on the Road*, TIME (Sept. 12, 2016), http://time.com/4475620/why-self-driving-trucks-may-be-the-next-big--thing-on-the-road/ (last visited Feb. 13, 2019) (detailing the major breakthroughs Otto has made and the highlighting the advantages of highway-autonomous trucks) (on file with the Washington and Lee Law Review).

27. *See* Darrell Etherington, *Uber Freight Launches to Connect Truck Drivers with Available Shipments,* TECHCRUNCH (May 18, 2017), https://techcrunch.com/2017/05/18/uber-freight-launches-to-connect-truck-drivers-with-available-shipments/ (last visited Feb. 13, 2019) (presenting a promo video for UberFreight and describing the services provided) (on file with the Washington and Lee Law Review).

occurring within an organization.[28] Labor turnover is essentially the process by which employees transmit the abilities and knowledge aggregated throughout their employment to other employers.[29] While these employees possess knowledge in their minds, they may not control the final innovative product developed in the firm.[30] Thus, scholars question whether tort law, intellectual property law, labor law, or antitrust law should encourage greater or lesser employee mobility in the knowledge-based economy.[31] When discussing such questions, we should consider the interests of several market players.

This Article endeavors to fill this gap by considering the mobility of key engineers and managers in groundbreaking conglomerates ("employees-intrapreneurs" or "intrapreneurs") from an agency perspective. It posits that different innovation agents provide distinct kinds of social welfare. Each tells only part of the story of the evolving role of discoveries. They respectively generate unique spillovers, thereby requiring distinct approaches. Unraveling the answers to the questions of who innovates and how is imperative for policymakers aiming to promote and regulate private sector innovation growth.[32] While much has been written

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28. *See* ORLY LOBEL, TALENT WANTS TO BE FREE: WHY WE SHOULD LEARN TO LOVE LEAKS, RAIDS, AND FREE RIDING 13–16 (2013) (arguing that innovative knowledge exists not only in company databases and computers, but also in the minds of employees); Orly Lobel, *The New Cognitive Property: Human Capital Law and the Reach of Intellectual Property*, 93 TEX. L. REV. 789, 790 (2015) (same); Lily Kahng, *Who Owns Human Capital?*, 94 WASH. U. L. REV. 607, 610 (2017) (showing how tax law provides significant subsidies to business owners to "propertize" labor into intellectual capital).

29. *See* Catherine L. Fisk, *Trade Secrets, Restrictive Covenants in Employment, and the Rise of Corporate Intellectual Property, 1800–1920,* 52 HASTINGS L.J. 441, 446 (2001) (detailing the history of courts' recognition of knowledge as a form of property).

30. *See* Lobel, *supra* note 28, at 797–99 (describing an instance in which a court required a terminated employee to disclose to his former employer his idea even though the idea had only existed in the employee's head).

31. *See* Henry Drummonds, *Workplace Secrets, Loyalty, and Theft*, 20 LEWIS & CLARK L. REV. 399, 400 (2016) (questioning whether the law of trade secrets, non-competition agreements, employee duty of loyalty, and tortious interference encourage employee mobility).

32. *See* WILLIAM J. BAUMOL, THE MICROTHEORY OF INNOVATIVE ENTREPRENEURSHIP 27 (2010) ("The major breakthroughs have tended to come

about the entrepreneurial character,[33] and the development and difficulties of entrepreneurship,[34] little has been accounted for its counterpart—intrapreneurial firms.[35]

This Article contributes to the literature by extending the theory of innovation to "intrapreneurship," namely within large, complex, groundbreaking organization.[36] Also dubbed as "corporate entrepreneurship" or "internal corporate venturing," intrapreneurship is the process whereby a group of employees in an existing organization instigate renewal or innovation within that organization.[37] Lockheed Advanced Development Projects (also known as "Skunk Works")[38] is an example of a group within

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from small, new enterprises, while the invaluable incremental contributions that multiply capacity and speed and increase reliability and user-friendliness have been the domain of the larger firms.").

33. For a general overview of psychological theories of entrepreneurial attributes, see Edward P. Lazear, *Balanced Skills and Entrepreneurship*, 94 AM. ECON. REV. 208, 208–11 (2004) (providing a general overview of psychological theories of entrepreneurial attributes).

34. *See* Viktor Mayer-Schonberger, *The Law as Stimulus: The Role of Law in Fostering Innovative Entrepreneurship*, 6 ISJLP 153, 170 (2010) (discussing risks and rewards of entrepreneurs). *See generally* DAVID ROBINSON & MANJU PURI, WHO ARE ENTREPRENEURS AND WHY DO THEY BEHAVE THAT WAY? (2006), http://bus.msjc.edu/Portals/22/entreprenuers.pdf.

35. *See* Darian M. Ibrahim, *Intrapreneurship*, 73 WASH. & LEE L. REV. 1741, 1743 (2016) ("What receives less attention is innovation that takes place inside our largest corporations, referred to as *intrapreneurship*."); Tamara C. Belinfanti, *Contemplating the Gap-Filling Role of Social Intrapreneurship*, 94 OR. L. REV. 67, 68 (2015) ("Although much has been written about social intrapreneurs in managerial literature, legal literature has been silent.").

36. Economists first coined the term "intrapreneurship" in the 1980s. *See generally* Norman Macrae, *Intrapreneurial Now*, ECONOMIST, Apr. 1982, at 67, 68. Up until the last decade, units that were divisions of large firms were excluded from the definition of entrepreneurs because it was difficult to establish their autonomy. *See* Joseph Bankman & Ronald J. Gilson, *Why Start-Ups?*, 51 STAN. L. REV. 289, 289–90 (1999) (noting that "the prototypical start-up involves an employee leaving her job with an idea").

37. *See* R. Duane Ireland, Jeffrey G. Covin & Donald F. Kuratko, *Conceptualizing Corporate Entrepreneurship Strategy,* 33 ENTREP. THEORY & PRAC. 19, 20 (2009) (providing an overview of corporate entrepreneurship); Pramodita Sharma & James J. Chrisman, *Toward a Reconciliation of the Definitional Issues in the Field of Corporate Entrepreneurship*, 23 ENTREP. THEORY & PRAC. 11, 12 (1999) (discussing corporate venturing).

38. *See Skunk Works Origin Story*, LOCKHEED MARTIN, https://www.lockheedmartin.com/us/aeronautics/skunkworks/origin.html (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review). The first Skunk Works project was in 1943 when the United States Army's Air

an organization given a high degree of autonomy to work on cutting-edge projects.[39] This group was responsible for major innovative aircraft developments such as the Nighthawk, Blackbird, Raptor and the F-35.[40] Intrapreneurial behavior involves continuous search for new opportunities, creation of innovative knowledge, and regeneration of original products.[41] While entrepreneurship denotes an independent process within the entrepreneur's external resources and environment, intrapreneurship involves new combinations nested in the internal resources of the firm.[42] These conglomerates use their vast market experience, exposure, and resources to develop and deliver new discoveries.[43]

Tactical Service Command (ATSC) asked Lockheed Aircraft Corporation to create a jet fighter quickly to deal with the German air force. Due to lack of room, engineers started off work in a circus tent that emitted a strong odor because of the intensive manufacturing work done inside. An engineer on the team was a fan of the comic Li'l Abner, which has a running joke about a mysterious and very bad smelling place deep in the forest called "Skunk Works." He began referring to the tent as Skunk Works, and it soon officially evolved into Lockheed's "Skunk Works" project. *Id.*

39. *See id*. (discussing how the Skunk Works "challeng[ed] the current bureaucratic system that stifled innovation and hindered progress").

40. *See, e.g.*, *Factbox: Lockheed's Skunk Works Behind Many U.S. Military Aircraft*, REUTERS (Dec. 10, 2014, 7:12 AM), https://www.reuters.com/article/us-lockheed-skunkworks-factbox/factbox-lockheeds-skunk-works-behind-many-u-s-military-aircraft-idUSKBN0JO17G20141210 (last visited Feb. 13, 2019) (listing Skunk Works' innovations) (on file with the Washington and Lee Law Review).

41. *See* JOE J. AMBERG & SARA L. MCGAUGHEY, FOSTERING LOCAL ENTREPRENEURSHIP IN A MULTINATIONAL ENTERPRISE 2 (2017) (describing the process of "corporate entrepreneurship" as a group of individuals in an existing organization instigating innovation within the firm).

42. *See* Robert A. Burgelman, *Corporate Entrepreneurship and Strategic Management: Insights from a Process Study*, 29 MGMT. SCI. 1349, 1354 (1983) (distinguishing between "internal" and "external" entrepreneurship).

43. S*ee* D. Gordon Smith & Masako Ueda, *Law & Entrepreneurship: Do Courts Matter?,* 1 ENTREPREN. BUS. L.J. 353, 356 (2006) ("Important issues in entrepreneurship by new firms arise from lack of experience and resources, which established firms usually possess."). Up until the last decade, units that were divisions of large firms were excluded from the definition of entrepreneurs because it was difficult to establish their autonomy. *See* Arshad M. Khan & V. Manopichetwattana, *Innovative and Noninnovative Small Firms: Types and Characteristics*, 35 MGMT. SCI. 597, 600 (1989).

After examining the innovation process from the perspective of the intrapreneurial enterprise, this Article concludes that a nation's economic development depends on entrepreneurship combined with the strength of intrapreneurship.[44] It further argues that the greatest externalities of intrapreneurial firms are their hub for entrepreneurs' exit and capitalization, their human capital spilling over into the labor market, and their cultivation of future individual-entrepreneurs. These spillovers, found in other companies, are more pronounced in the intrapreneurial context.[45]

While these spillovers are beneficial to society and to the innovation process, they can be detrimental to intrapreneurial firms whose competitive advantage relies heavily on innovative knowledge.[46] As a result, these firms are more likely to develop mechanisms that will cause lock-in and lock-out effects of human capital.[47] This Article recognizes these negative externalities that warrant special attention. It provides policymakers a unique viewpoint on today's greenhouses of human capital.

Part I of this Article provides a taxonomy of innovation agency and focuses on entrepreneurship and its significance to the discovery process. Part II distinguishes between entrepreneurship and intrapreneurship. It examines the innovation process in intrapreneurial companies from both the organization and the employee-intrapreneur's perspective. Part III then analyzes the positive spillovers of intrapreneurial firms such as training the next generation of entrepreneurs and providing them exit

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44. *Id*. at 97, 104; *see also* Zoltán J. Ács, *"Entrepreneurial Capitalism" in Capitalist Development: Toward a Synthesis of Capitalist Development and the "Economy as a Whole," in* ZOLTÁN J. ÁCS, DAVID B. AUDRETSCH & ROBERT J. STROM, ENTREPRENEURSHIP, GROWTH, AND PUBLIC POLICY 319 (2006) [Hereinafter ENTREPRENEURSHIP, GROWTH, AND PUBLIC POLICY] (developing Schumpeter's theory describing the U.S. rediscovering the importance of innovation and entrepreneurship).

45. *See Leaps of Faith*, ECONOMIST, (Feb. 18, 1999), https://www.economist.com/special-report/1999/02/18/leaps-of-faith (last visited Feb. 13, 2019) ("Most successful innovations are born, bred, and brought to market entirely within well-established organizations, mainly large companies. The people who do this for a living are not so much entrepreneurs as intrapreneurs.") (on file with the Washington and Lee Law Review).

46. *See* Belinfanti, *supra* note 35, at 109 (expressing concern that lock-in procedures will cripple intrapreneurial innovation).

47. *See id.* (explaining that companies implement lock-in procedures to secure control over employee inventions).

opportunities. Thereafter, Part IV describes legal arrangements that intrapreneurial firms undertake to lock-in employees in the company or lock-out employees from competitors' reach in the hope of avoiding its dissemination. Part V suggests ways to amend the current legal environment and maximize social welfare by maintaining the positive and preventing the negative externalities of intrapreneurial firms. Lastly, Part VI concludes by reflecting on future research on the topic.

II. The Innovation Process

The term "innovation" often denotes novelty, originality, and newness.[48] Joseph Schumpeter, an influential scholar from the Austrian school of economic thought, defined economic development as a dynamic process of change.[49] He claimed that the circular flow of economic life evolves through a process of "creative destruction"—that is, cycles of punctuated equilibria disrupted by sudden leaps of endogenous innovation.[50] In other words, innovations destroy the basis of the old economy and pave the way for a new economic order with higher levels of prosperity and welfare.[51] In 2007, the introduction of the smartphone by Apple radicalized many industries.[52] The iPhone allowed consumers to

48. *See* Sofia Ranchordás, *Does Sharing Mean Caring? Regulating Innovation in the Sharing Economy,* 16 MINN J.L. SCI. & TECH. 413, 427 (2015) (explaining that innovation is the ability to take new ideas and translate these original ideas into outcomes using new processes, products, or services).

49. *See* Markus C. Becker, Thorbjorn Knudsen & Richard Swedberg, *Introduction*, *in* JOSEPH A. SCHUMPETER, THE ENTREPRENEUR: CLASSIC TEXTS BY JOSEPH A. SCHUMPETER 1, 4 (Markus C. Becker, Thorbjørn Knudsen & Richard Swedberg eds., 2011) (noting that Schumpeter's most famous work on the theory of entrepreneurship is his *Theory of Economic Development* (1911), which started to draw attention soon after it was translated into English under Schumpeter's supervision and published in 1934).

50. As opposed to passive adaptive behavior. *See* JOSEPH A. SCHUMPETER, THE THEORY OF ECONOMIC DEVELOPMENT (1911), *reprinted in* THE ENTREPRENEUR: CLASSIC TEXTS BY JOSEPH A. SCHUMPETER, *supra* note 49, at 155–56 (explaining how the economy changes over time).

51. *See id*. at 162 (explaining how "changes in the environment do not have merely static influences. Rather, they trigger new things").

52. *See* Paul Germeraad et. al., *Shifts in Big Oil Patent Landscape:*

access the internet from wherever they were, using a navigation system that was easier to operate than others in the market.[53] The iPhone directly impacted computer sales,[54] as well as traditional landline companies (effectively eliminating many people's landlines and telephone booths).[55] It also radically transformed the gaming industry with the advent of mobile games and applications.[56]

Innovation agents such as Apple are responsible for not only revealing new knowledge, but also successfully commercializing and introducing it to the market. In order to transform inventions into viable innovations with economic value, innovation agents take the original idea or concept and create a prototype, define its function, gather resources together, and monitor the progression of the development process.[57] Once the innovative product is out in the marketplace it may create new market demands by challenging previous popular practices and traditions.[58] Innovation agents destroy the basis for the old economy while paving the way to a new economic order of prosperity and welfare by implementing innovations.[59] This Part will outline the

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Capturing Value from Intellectual Property for National Transformation, 52 LES NOUVELLES 37, 38 (2017) (discussing how the iPhone "completely reset the market's vision of what a 'mobile phone' should be").

53. *See* Tim Bajarin, *How Apple's iPhone Changed These 5 Major Industries*, TIME (June 26, 2017), http://time.com/4832599/iphone-anniversary-industry-change/ (last visited Feb. 13, 2019) (discussing how the iPhone allowed consumers to "have many more options to make the [internet] connection they need regardless of location") (on file with the Washington and Lee Law Review).

54. *See id*. (noting that PC sales have declined by roughly 30% since the iPhone).

55. *See id*. (explaining how the iPhone forced traditional communication companies to completely change their business model).

56. *See id*. ("The iPhone expanded the market for mobile games as well as created an entirely new category of touch-based gameplay . . . .").

57. *See* Diana L. Day, *Raising Radicals: Different Processes for Championing Innovative Corporate Ventures*, 5 ORG. SCI. 148, 149 (1994) (discussing the character of intrapreneurs).

58. *See* JOSEPH A. SCHUMPETER, THE THEORY OF ECONOMIC DEVELOPMENT: AN INQUIRY INTO PROFITS, CAPITAL, CREDIT, INTEREST, AND THE BUSINESS CYCLE 66 (3d ed. 1936) (describing economic development as the "opening of a new market, that is a market into which the particular branch of manufacture of the country in question has not previously entered, whether or not this market has existed before").

59. *See id*. at 149 (explaining that the "new state of affairs will soon replace

taxonomy of innovation agents followed by a focus on private sector entrepreneurship.

A. The Taxonomy of Innovation Agents

There are several types of innovation agents. Accelerators, incubators, and financing hubs are instrumental in facilitating innovation.[60] These mediators provide mentorship and educational components, access to substantial networking, information, and capital.[61] For example, Y Combinator is an accelerator that helped launch Reddit, Uber, and Airbnb.[62] Similar to other accelerators, Y Combinator provides seed investment in start-ups in exchange for a "promised right to purchase equity in the future."[63] Other than capital, during three-month periods, in-house managing partners provide guidance to start-ups and arrange weekly networking events to introduce start-ups to alumni and future investors.[64]

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the old accustomed value by a new one, which will finally become the customary one").

60. Accelerators and incubators are often used interchangeably, but they are different in some respects. Incubators provide resources to the company for longer periods of time (up to several years) with the goal being job creation and economic development. Accelerators are commonly for-profit organizations that act as incubators for shorter periods of time, but provide same services, and receive equity from start-ups. *See* Dana Thompson, *Accelerating the Growth of the Next Generation of Innovators,* 8 OHIO ST. ENTREP. BUS. L.J. 379, 391 n.2 (2013) (describing the differences between incubators and accelerators).

61. *See* Day, *supra* note 57, at 155 (describing leadership opportunities in corporate venturing).

62. *See* Kate Rockwood, *Accelerated Liberties to Handle Its Funding Surge, the ACLU Looks to Silicon Valley in Managing Funding Surge*, ABA J. (June 2017),
http://www.abajournal.com/magazine/article/aclu_ycombinator_funding_accelerator (last visited Feb. 13, 2019) ("Y Combinator is best known for launching start-ups such as Airbnb, Reddit and Uber.") (on file with the Washington and Lee Law Review).

63. *See* Dana Brakman Reiser & Steven A. Dean, *Financing the Benefit Corporation*, 40 SEATTLE U. L. REV. 793, 816 (2017) (citation omitted).

64. *See* Rockwood, *supra* note 62, at n.91 (explaining that the ACLU presented to potential donors during Y Combinator).

Essential innovations are also generated by government agencies and universities.[65] These innovation agents are instrumental in countering the "knowledge filter."[66] A knowledge filter is defined as the tendency of certain innovation agents to place high screeners and barriers to impede creativity.[67] Innovation agents often decide not to pursue ideas that would ultimately lead to valuable innovations.[68] Some for-profit innovation agents consider investing in basic research a "wasteful" expenditure because it carries no guarantee of enhancing the company's earnings.[69] For these reasons, other innovation conduits such as universities and government agencies are essential for cultivating discoveries that might otherwise be abandoned or lie dormant.[70] For example, many universities fulfill an important role

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65. *See* BAUMOL, *supra* note 32, at 34 ("There are, however, two key players in the innovation story that are not guided directly by market forces: universities and government agencies.").

66. *See* Zoltán J. Ács, David B. Audretsch & Robert J. Strom, *Introduction: Why Entrepreneurship Matters*, *in* ENTREPRENEURSHIP, GROWTH, AND PUBLIC POLICY, *supra* note 44, at 7 (explaining that the knowledge filter is "impeding the spillover of knowledge for commercialization, innovation, and ultimately economic growth"); DAVID B. AUDRETSCH, MAX KEILBACH & ERIK LEHMANM, ENTREPRENEURSHIP AND ECONOMIC GROWTH 5 (2006) (discussing "the existence of a knowledge filter that impedes the commercialization and spillover of knowledge").

67. *See* Ács, Audretsch & Strom, *supra* note 66, at 7 (listing various examples of knowledge filters, such as the copy machine, fax machine, personal computer, and flat screen).

68. *See id*. at 8 ("Many of the most visible and successful companies of today were created by people who tenaciously stuck with ideas rejected by the decision-making bureaucracy of large corporations and choose to pursue and commercialize those ideas by becoming entrepreneurs."); *see also* CLAYTON M. CHRISTENSEN, THE INNOVATOR'S DILEMMA: WHEN NEW TECHNOLOGIES CAUSE GREAT FIRMS TO FAIL 86 (1997) (contending that "established firms are also captive to the financial structure and organizational culture inherent in the value network in which they compete—a capacity that can block any rationale for timely investment in the next wave of destructive technology").

69. *See* BAUMOL, *supra* note 32, at 34 ("From the point of view of the unthinking market mechanism, an outlay on basic research is apt to be a 'wasteful' expenditure because it makes no substantial promises of adding to the firm's profits.").

70. *See* Clifton Leaf, *The Law of Unintended Consequences*, CNN MONEY (Sept. 19, 2005), https://money.cnn.com/magazines/fortune/fortune_archive/2005/09/19/8272884/index.htm (last visited Feb. 13, 2019) ("For a century or more, the white-hot core of American innovation has been basic science. And the foundation of basic science has been the fluid exchange of ideas at the nation's

in developing drugs that treat rare diseases or uncommon conditions.[71] In 1990, three scientists at Emory University began work on what would eventually become Emtriva, a drug used to treat HIV during a time with relatively little market interest in finding viable treatment for HIV or AIDS.[72] The scientists, working on a federal grant, had to wait until 2003 for their drug to be approved by the FDA.[73] By 2005, Emory had received $540 million for their 20% share in the drug after it was combined with another antiviral formula.[74] This innovative and life-changing drug was produced in spite of the required high degree of experimentation and market uncertainty.[75]

By its very nature, basic research generates enormous uncertainty. "[I]t is nearly impossible to predict whether basic research will yield any financial benefit and, if it does, who will be the ultimate beneficiary."[76] Yet, universities and government agencies are innovation agents that are not guided directly by market forces.[77] In fact, 73% of schools that have tech-transfer offices either lose money after paying salaries and operating expenses or break even after the distribution of inventor's shares.[78] Only 11% of schools end up making a profit.[79] And yet even

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research universities.") (on file with the Washington and Lee Law Review).

71. *See id*. (describing how universities contribute to medical research).

72. *See id*. (explaining that three Emory University scientists developed Emtriva).

73. *See id*. (explaining how the researchers "received FDA approval only in July 2003").

74. *See id*. (describing how Emory developed and sold Emtriva).

75. *See* John E. Tyler III, *Advancing University Innovation: More Must Be Expected—More Must Be Done*, 10 MINN. J.L. SCI. & TECH. 143, 182 (2009) ("Often, university innovations are at a stage of development where there is a high degree of technical and, especially, market uncertainty." (citation omitted)).

76. BAUMOL, *supra* note 32, at 34.

77. *See* BAUMOL, *supra* note 32, at 34 (explaining how the "public-private division of labor can be attributed to the private firm's profit motive").

78. *See* Dave Merrill, Blacki Migliozzi & Susan Decker, *Billions at Stake in University Patent Fights,* BLOOMBERG (May 24, 2016), https://www.bloomberg.com/graphics/2016-university-patents/ (last visited Feb. 13, 2019) (displaying a chart breaking down tech-transfer finances) (on file with the Washington and Lee Law Review).

79. *See id*. (displaying a chart breaking down tech-transfer finances).

operating at a loss most of the time, these public-sector innovation agents are responsible for the utmost revolutionary discoveries. In 2006, R&D Magazine found that fifty-five of the top eighty-eight innovations were products of publicly funded agents such as U.S. government laboratories or universities either working alone or in conjunction with private firms.[80] Private firms alone only made six out of the eighty-eight innovative products.[81] Nanotechnology has benefitted the most from innovations at universities.[82] In any given field, universities account for roughly 1% of the patents.[83] However, in the field of nanotechnology they account for 12% of the patents and about 2/3 of the patents for the basic building blocks of nanotechnology.[84] One reason that might explain this idiosyncrasy is that the nanotechnology industry involves immense investments in capital and labor until commercial application is more certain.[85] Universities are not confined to specific market applications and thus, are more likely to engage in more basic building block type research than private markets.[86]

These university agents' contributions tend to be rooted in extended periods of fundamental study and discovery.[87] Their lack of profit motive distinguishes them significantly from private sector agents.[88] Universities and government agencies fill a void

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80. *See* Fred Block, *Swimming Against the Curent: The Rise of a Hidden Developmental State in the United States*, 36 POL. & SOC'Y 169, 187 (2008) (describing expanding finance and support opportunities for the private sector to commercialize new technologies in the U.S. alongside political efforts to make these efforts invisible to mainstream public debate).

81. *Id*.

82. *See* Mark A. Lemley, *Patenting Nanotechnology*, 58 STAN. L. REV. 601, 615 (2015) ("The third significant fact unique to nanotechnology patents is that they are held in surprisingly large proportion by universities.").

83. *See id*. (reviewing the development of the nanotechnology industry).

84. *See* Mark A. Lemley, *Are Universities Patent Trolls?,* 18 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 611, 614–15 (2008) (reviewing the types of innovation patented in universities).

85. *See* Lemley, *supra* note 82, at 616 (discussing why universities patent nanotechnology more than other technology).

86. *See id*. (explaining that most of the "basic research labs are located in universities").

87. *See* BAUMOL, *supra* note 32, at 34 ("This public-private division of labor can be attributed to the private firm's profit motive.").

88. *See* Birch Bayh & Joseph P. Allen, *School Power: The Case for Keeping Innovation in the Hands of Universities*, ATLANTIC (Apr. 11, 2012), https://www.theatlantic.com/business/archive/2012/04/school-power-the-case-for-

and ensure that basic research is undertaken regardless of its duration or ambiguity.[89] The case from Emory mentioned above is a prime example. In the field of medicine, universities have been crucial in researching new drugs that can take more than a decade and anywhere from $4–$11 billion to create.[90] Long-term growth and applied innovation depend greatly on advancements made in basic research.[91] Thus, it is imperative to maintain such non-profit innovation agencies. However, this Article's focus is on the innovation process in the private sector. Next, it will spotlight entrepreneurial and intrapreneurial agents and their role in delivering innovations to the masses.

B. Entrepreneurs

1. Defining Entrepreneurship

The term "entrepreneur" was coined by economist Richard Cantillon.[92] He defined the entrepreneur as an "agent who buys means of production at certain prices in order to combine them into a product that he is going to sell at prices that are uncertain at the moment at which he commits himself to his costs."[93] French

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keeping-innovation-in-the-hands-of-universities/255751/ (last visited Feb. 13, 2019) (explaining that universities conduct research even when profits are rare, whereas the "private sector abandoned basic research for this reason") (on file with the Washington and Lee Law Review).

89. *See id*. (explaining that although "breakthrough technologies are most likely to occur [in basic research], these discoveries are far removed from being commercial products").

90. *See id*. ("Developing new drugs can take more than a decade, sometimes costing $4 billion to $11 billion per drug by some estimates.").

91. *See id*. (explaining that it "takes years for university inventions to reach the market").

92. *See* RICHARD CANTILLON, ESSAI SUR LA NATURE DU COMMERCE EN GENERAL 388 (Henry Higgs ed. & trans., Frank Cass & Co. Ltd. 1959) (1755) (explaining that Cantillon coined the term entrepreneur "to designate that most important economic function of the man who collects in his hands the productive forces of capital—labour and natural agents").

93. Joseph A. Schumpeter, *Economic Theory and Entrepreneurial History*, *reprinted in* ESSAYS ON ENTREPRENEURS, INNOVATIONS, BUSINESS CYCLES, AND THE EVOLUTION OF CAPITALISM 254 (Richard V. Clemence ed., 1989); *see also* JOSEPH

economist Jean-Baptiste Say portrayed the entrepreneur as an "undertaker of industry who unites all the[] means of production, and who finds in the value of the products which result from them, the re-establishment of the entire capital he employs."[94] Today, anyone can be considered an entrepreneur.[95] Undoubtedly, the actions of moral or social,[96] political or regulatory[97] "entrepreneurs" are prevalent in society.[98]

Moral entrepreneurs, as described by Posner, do not base arguments on logic but rather "mix appeals to self-interest with emotional appeals" to create either a sense of unity or hostility towards another group.[99] The prison reform movement is a key example of attempting to persuade the general population to see prisoners as one of them instead of an "other."[100] Moral entrepreneurship has also been used in the anti-same-sex marriage movement to demonize same gendered marriages and protection laws.[101]

A. SCHUMPETER, HISTORY OF ECONOMIC ANALYSIS, 57 (1954) (carrying out of new combinations we call "enterprise"; the individuals whose function it is to carry them out we call "entrepreneurs.").

94. JEAN-BAPTISTE SAY, CATECHISM OF POLITICAL ECONOMY 36–37 (John Richter trans., 1816).

95. *See* David E. Pozen, *We Are All Entrepreneurs Now*, 43 WAKE FOREST L. REV. 283, 283 (2008) (describing the growth of entrepreneurship in recent decades).

96. *See id*. at 290–91 ("Nowadays, 'social entrepreneurs' tackle civic problems through innovative methods, 'policy entrepreneurs' promote new forms of government action, 'norm entrepreneurs' seek to change the way society thinks or behaves, and 'moral entrepreneurs' try to alter the boundaries of duty or compassion.").

97. *See* Sharma & Chrisman, *supra* note 37, at 1 ("Entrepreneurship has meant different things to different people."); *see also infra* note 114 and accompanying text.

98. *See* Pozen, *supra* note 95, at 283 ("Everyone, it seems, is an entrepreneur these days."); *see also* Thomas Kelley, *Rediscovering Vulgar Charity: A Historical Analysis of America's Tangled Nonprofit Law,* 73 FORDHAM L. REV. 2437, 2463–64 (2005) (providing a taxonomy of social entrepreneurship, non-profits and "venture philanthropy").

99. *See* Richard Posner, *The Problematics of Moral and Legal Theory,* 111 HARV. L. REV. 1637, 1667 (1998) ("They teach us to love or hate whom they love or hate.").

100. *See* George Fisher, *The Birth of the Prison Retold*, 104 YALE L.J. 1235, 1237 (1995) (detailing the history of the prison reform movement).

101. *See* Deirdre M. Bowen, *All that Heaven Will Allow: A Statistical Analysis of the Coexistence of Same-Sex Marriage and Gay Matrimonial Bans,* 91 DENV. U.

Social entrepreneurship encompasses a "double bottom line" of profit and social goods.[102] Social entrepreneurs create technologies to benefit people and the planet. Social entrepreneurship generally has three main components:[103] First, identifying an unjust equilibrium that results in the exclusion, marginalization, or suffering of a group in society lacking financial or political power;[104] second, finding an opportunity to challenge the status quo;[105] and lastly, creating a new equilibrium that does away with the identified injustice.[106] Social enterprises manufacture products with beneficial environmental or other social impact.[107] They often distribute free products in developing countries or employ workers that traditionally face obstacles to finding employment.[108] Founders of social enterprises hold

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L. REV. 277, 308 (2014) ("Here, the social problem is the vulnerability of marriage as a central institution of the family, and the connected social issue is homosexual couples.").

102. *See* Dana Brakman Reiser & Steven A. Dean, *Hunting Stag with Fly Paper: A Hybrid Financial Instrument for Social Enterprise*, 54 B.C. L. REV. 1495, 1495 (2013) (proposing a hybrid corporate structure to accommodate the goals of social entrepreneurship).

103. *See* J. Haskell Murray & Edward I. Hwang, *Purpose with Profit: Governance, Enforcement, Capital-Raising and Capital-Locking in Low-Profit Limited Liability Companies,* 66 U. MIAMI L. REV. 1, 7 n.28 (2011) (listing the three components of entrepreneurship).

104. *See id*. (explaining that the first factor consists of "identifying a stable but inherently unjust equilibrium that causes the exclusion, marginalization, or suffering of a segment of humanity that lack the financial means or political clout to achieve any transformative benefit on its own" (citation omitted)).

105. *See id*. (explaining that the second factor consists of "identifying an opportunity in this unjust equilibrium, developing a social value proposition, and bringing to bear inspiration, creativity, direct action, courage, and fortitude, thereby challenging the stable state's hegemony" (citation omitted)).

106. *See id*. (explaining that the third factor consists of "forging a new, stable equilibrium that releases trapped potential or alleviates the suffering of the targeted group, and through imitation and the creation of a stable ecosystem around the new equilibrium ensuring a better future for the targeted group and even society at large" (citation omitted)).

107. *See* Reiser & Dean, *supra* note 102, at 1499 ("These enterprises manufacture products using more expensive inputs to reduce their environmental impact, or give away some of their products to those in need." (footnote omitted)).

108. *See id*. (describing examples of how social entrepreneurs pursue social good and profit).

ownership if the technology in the enterprise turns out to be successful outside of the social goal and has the potential to create substantial profit.[109] For example, Husk Power Systems, a social enterprise based in India, had an innovative idea to create environmentally friendly fuels by converting rice husks into energy.[110] The company raised $20 million in equity investment, making it "one of the largest, if not the largest investment in the mini-grid sector."[111] The company provides cost-effective power to thousands of rural Indians.[112]

A political entrepreneur recognizes the group voting power of an otherwise ignored demographic or category of individuals and then mobilizes and educates the group to achieve an end.[113] Regulatory entrepreneurs include companies such as Uber and Airbnb that had to push for changes in policy and regulations in order to enter certain markets previously hostile to them.[114] Both companies fought a long and hard battle against city councils.[115]

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109. *See* Dana Brakman Reiser & Steven A. Dean, *SE(c)(3): A Catalyst for Social Enterprise Crowdfunding*, 90 IND. L.J. 1091, 1093 (2015) (discussing crowdfunding options for social enterprises).

110. *See Innovations*, HUSK POWER SYS., http://www.huskpowersystems.com/innovations/ (last visited Feb. 13, 2019) (detailing the company's biomass gasification process which utilizes biomass waste, such as rice husks, to provide access to power for rural customers) (on file with the Washington and Lee Law Review).

111. Esha Chhabra, *How This Social Enterprise Just Closed $20 Million in Funding,* FORBES, (Jan. 29, 2018, 2:25 PM), https://www.forbes.com/sites/eshachhabra/2018/01/29/how-this-social-enterprise-just-closed-20-million-in-funding/ (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review).

112. *See* David Borenstein, *A Light in India*, N.Y. TIMES (Jan. 10, 2011, 7:25 PM), https://opinionator.blogs.nytimes.com/2011/01/10/a-light-in-india/ (last visited Feb. 13, 2019) ("[Husk] has 65 power units that serve a total of 30,000 households and is currently installing new systems at the rate of two to three per week.") (on file with the Washington and Lee Law Review).

113. *See* Dale B. Thompson, *Political Obstacles to the Implementation of Emissions Markets: Lessons from RECLAIM*, 40 NAT. RESOURCES J. 645, 649 (2000) ("With the group mobilized, the entrepreneur can then direct its political power to further the entrepreneur's own purposes.").

114. *See* Elizabeth Pollman & Jordan M. Barr, *Regulating Entrepreneurship,* 90 S. CAL. L. REV. 383, 435 (2017) (describing regulatory entrepreneurs as enterprises acting with a specific agenda to organize people sympathetic to the companies' positions and change the regulatory environment).

115. *See id*. at 387–89 (summarizing Uber's response to regulatory efforts in New York City and Airbnb's challenges in jurisdictions that limit short term

What finally helped was their ability to rally enormous support from citizens who advocated to change city provisions and allowed these firms to enter the cab-driving and hotel markets, respectively.[116] Lastly, educational entrepreneurs advocate for change in the educational realm.[117] Today's poster-child for educational entrepreneurs are those advocating for charter schools to replace traditional schools.[118]

2. The Men Who Get Things Done

Shifting the focus to for-profit entrepreneurs, according to Schumpeter, these are principal agents of economic change and a source of destabilizing forces within the economy.[119] Entrepreneurs go beyond current perceptions and provide legitimacy to the new product.[120] These "economic leaders," as

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rentals).

116. *See id*. (noting Uber's success in New York City and Airbnb's success in San Francisco); *see also* Joseph D. Bryant, *Birmingham vs. Uber: Council President Still Open to Talking to Company After Passing New Rules Uber Calls Unfair*, BIRMINGHAM NEWS (July 29, 2014), http://www.al.com/news/birmingham/index.ssf/2014/07/birmingham_vs_uber_council_pre.html (last updated July 29, 2015) (last visited Feb. 13, 2019) (reporting on Uber's negative response to regulations that authorized mobile web apps like Uber but still required compliance with traditional transit service rules) (on file with the Washington and Lee Law Review).

117. *See* David Groshoff, *Unchartered Territory: Market Competition's Constitutional Collision with Entrepreneurial Sex-Segregated Charter Schools*, 2010 BYU EDUC. & L.J. 307, 324–25 (considering the success of entrepreneurs' innovations in charter schools relative to traditional public schools).

118. *See id*. at 310 n.12 ("[Since 1995], educational entrepreneurs have successfully created approximately 3,000 charter schools.").

119. *See* SCHUMPETER, *supra* note 50, at 261–83 (noting the effect of entrepreneurial activity upon the industrial structure is the consequent process of reoccurring destruction and reconstruction); *see also* Amir N. Licht, *The Entrepreneurial Spirit and What the Law Can Do About It*, 28 COMP. LAB. L. & POL'Y J. 817, 822 (2007) ("In a continuing 'circular flow of economic life,' the economy never reaches an equilibrium but rather shifts from one disequilibrium to another.").

120. *See* Manuel A. Utset, *Reciprocal Fairness, Strategic Behavior & Venture Survival: A Theory of Venture Capital-Financed Firms*, 2002 WIS. L. REV. 45, 101 (noting entrepreneurs' perception of the prospects for success tend to be higher

Schumpeter often described them, are avant-garde in that they produce new combinations and creations that confront, and eventually defeat, the existing economic order.[121] Schumpeter's depiction of this economic process originated in the 1910s.[122] Who are those innovation agents in today's economy?

Today, entrepreneurship involves the creative reading of the present and the imaginative prediction of the future.[123] Apple engineers were able to do just that with the first model of the iPhone.[124] Apple CEO Steve Jobs realized the desire of consumers to have a portable device that could do more than text or check e-mail.[125] He saw that technology was developing to allow more processing power in tinier packages.[126] Leading Apple at that time,

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than profession managers).

121. *See* SCHUMPETER, *supra* note 58, at 74–75 ("[T]he carrying out of new combinations we call 'enterprise'; the individuals whose function it is to carry them out we call 'entrepreneurs.'").

122. *See* SCHUMPETER, *supra* note 47, at ix (discussing how some of the ideas submitted in the book date back to 1907 but the book was published for the first time in German in 1911).

123. *See, e.g.*, YOCHAI BENKLER, THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM 133–35 (2006) (highlighting the role of the network information economy in the creation of a Star Wars fan-film as an example of active production in the economy instead of passive involvement); Jack M. Balkin, *Digital Speech and Democratic Culture: A Theory of Freedom of Expression for the Information Society*, 79 N.Y.U. L. REV. 1, 45–48 (2004) ("Digital technologies offer people the liberty to participate in culture through application of existing cultural materials, the ability to appropriate and innovate using tools freely available to all.").

124. Steve Jobs described the iPhone as a "world phone with quad-band GSM technology that works great in the U.S., Europe and most of Asia." Walt Mossberg, *Steve Jobs Answers My iPhone Questions*, ALLTHINGSD.COM (June 26, 2007, 3:01 PM), http://mossblog.allthingsd.com/20070626/jobs-qa (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review).

125. *See id*. (recollecting Steve Jobs' statement that most users hate their phones and the user interface, and that the lack of a physical keyboard "free[s] iPhone's entire large screen for reading email, browsing the Web, looking at maps, enjoying photos and movies, and doing things we haven't yet invented").

126. *See Press Release, Apple Reinvents the Phone with iPhone*, APPLE (Jan. 9, 2007), http://www.apple.com/pr/library/2007/01/09Apple-Reinvents-the-Phone-with-iPhone.html (last visited Feb. 13, 2019) (introducing the iPhone, combining a phone, iPod, and internet device into one "small and lightweight handheld device") (on file with the Washington and Lee Law Review); *see also* Steve Jobs, *Steve Jobs Introduces iPhone in 2007*, YOUTUBE (Jan. 9, 2007), https://www.youtube.com/watch?v=MnrJzXM7a6o (last visited Feb. 13, 2019) ("Every once and awhile, a revolutionary product comes along that changes everything.") (on file with the Washington and Lee Law Review).

Jobs revolutionized the way the world thinks about phones and portability, and predicted the way the world would soon become.[127]

Entrepreneurship prospers on such deviations, as opposed to traditional causation, and it involves adapting to disarray.[128] Accordingly, certain characteristics such as creativity, risk-taking, independence, confidence, and resilience may be common among entrepreneurs.[129] Many factors, including independence and flexibility, have been found to affect entrepreneurial decisions to take risks and be innovative.[130] Yet, there is no consensus on the qualities that are inherent to the entrepreneurial persona.[131]

Nevertheless, this Article theorizes the entrepreneurial phenomenon as a process (rather than a trait) that contributes to economic development.[132] It relies on the perception of innovation as a process that involves the transformation of resources into new products, new market demand, and large economic gains.[133]

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127. *See* Wendy Seltzer, *Software Patents and/or Software Development*, 78 BROOKLYN L. REV. 929, 936 (2013) (noting that Apple's iPhone inspired a whole line of related devices with touch screens).

128. *See* Licht, *supra* note 119, at 819 ("[B]eyond seeking material success the crucial element in the entrepreneurial spirit is openness to change—an interest in the different and in new experiences while deemphasizing the safe and the proven."); FRANK H. KNIGHT, RISK, UNCERTAINTY, AND PROFIT 269 (1921) (positing that entrepreneurs differ their degree of confidence).

129. *See, e.g.*, Licht, *supra* note 119, at 832 ("Entrepreneurs are indeed special individuals in that they tend to exhibit a particular combination of psychological attributes . . . ."); *see* Becker, Knudsen & Swedberg, *supra* note 49, at 16 (noting that Schumpeter also emphasized "individual-level psychological factors").

130. *See* Licht, *supra* note 119, at 823 ("[P]eople people differ in the qualities necessary to engage in entrepreneurship. Relative to the average person, the entrepreneur is therefore particularly 'venturesome' . . . ." (footnote omitted)); *see also* Robert H. Brockhaus, *Risk Taking Propensity of Entrepreneurs*, 23 ACAD. MANAG. J., 509, 510–11 (1980) ("The personal financial obligations that the entrepreneur makes to an unsuccessful enterprise can result in major losses to the entrepreneur as an individual and could jeopardize his future standard of living.").

131. *See* Carl P. Kaiser, *Entrepreneurship and Resource Allocation*, 16 E. ECON. J. 9, 10 (1990) ("[P]rospective entrepreneurs will differ with respect to how much risk they are willing to bear . . . .").

132. *See* Smith & Ueda, *supra* note 43, at 357 (calling for a "focus on the study of the optimal legal structures that facilitate the commercialization of entrepreneurial opportunities").

133. *See* SCHUMPETER, *supra* note 58, at 50 ("The exchange between money

Nanotechnology discussed earlier, is an example of such process.[134] Public-sector innovation agents usually begin the process by exploring the basic building blocks of the technology.[135] They are able to sustain large economic losses because of their non-profit nature.[136] Once the building blocks are established, private entities can work with universities or license the patents to use in their own products.[137] After a newer product has emerged, with novice applications that establish new market demands, the private sector accumulates large economic gains with the public sector possibly taking part in the spoils, as well.[138]

Entrepreneurs are a destabilizing force and principle agents of change in an economy.[139] They are special because they create "new combinations"; that is, they introduce new products, develop new methods of production, devise new business models, and create new markets.[140] Their creations confront and eventually defeat the existing economic order.[141] They differ from ordinary business people in the extent and nature of their actions, their motives, and the conditions in which they act as agents of innovation. Steve Jobs was notorious for his perfectionism.[142] His

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income and real income is therefore the salient point, is the place in the economic process where personal exchange value and hence the price of money is formed.").

134. *See* Lemley, *supra* note 83, at 618 ("Indeed, not since the birth of the airplane a hundred years ago have we seen similar efforts by a range of different inventors to patent basic concepts in advance of a developed market for end products.").

135. *See id.* at 616 (noting the dominance of universities in nanotechnology patenting).

136. *See id.* (arguing that universities tend to focus on building block patents rather than downstream implementations of a technology).

137. *See id.* at 626–27 (asserting that universities maximize licensing revenues from patents by granting exclusive licenses to private firms).

138. *See* Lemley, *supra* note 84, at 614 ("Those university patents don't sit dormant; universities license them to companies for over $1 billion a year in revenue.").

139. *See* SCHUMPETER, *supra* note 93, at 262–63 ("What we observe is . . . the effects of entrepreneurial activity upon the industrial structure that exits at any moment . . . .").

140. *See id.* at 262 (describing a behavioral pattern that "giv[es] effect to the possibilities inherent in a given legal and social system both of which change in the process").

141. *See id.* at 263 (observing "the . . . process of destruction and reconstruction that went on all the time").

142. *See* Malcolm Gladwell, *The Tweaker*, NEW YORKER (Nov. 14, 2011),

obsessive search for the next innovation or the next tweak that would finally perfect a product (though it never did fully satisfy Jobs) drove him to change and reinvent the computer and phone industries, and the way we interact with the world entirely.[143] He insisted that all Apple products have a closed back to prevent any interference with the inner workings[144] because in his eyes it was already perfect, and yet, he constantly sought after the latest idea for the next product to be released just the following year.[145] Bill Gates is the great foil to Jobs's character.[146] Bill Gates was an obsessive coder, not a perfectionist designer, who instead of pushing a message of exclusivity and elitism as Jobs did, focused on putting a PC in every single home.[147]

In this Article, entrepreneurship refers to the actions of for-profit firms or individuals that are innovative, rather than imitative, and who are likely to create products with new market demand and contribute to economic growth. Economist Zoltán Ács differentiated between necessity entrepreneurship and

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https://www.newyorker.com/magazine/2011/11/14/the-tweaker (last visited Feb. 13, 2019) ("[Jobs] needed things to be perfect, and it took time to figure out what perfect was.") (on file with the Washington and Lee Law Review).

143. *See id.* ("Jobs's sensibility was editorial, not inventive. His gift lay in taking what was in front of him—the tablet with stylus—and ruthlessly refining it.").

144. *See 'Steve Jobs': Profiling an Ingenious Perfectionist*, NPR (Nov. 11, 2011), https://www.npr.org/2011/11/11/142244048/steve-jobs-profiling-an-ingenious-perfectionist (last visited Feb. 13, 2019) ("He loves to control everything from end to end, which is why you can't open up your iPhone . . . .") (on file with the Washington and Lee Law Review).

145. *See* Gladwell, *supra* note 142 ("[Jobs] forced the developers to do another version, and then another, about twenty iterations in all, insisting on one tiny tweak after another . . . ."); *'Steve Jobs': Profiling An Ingenious Perfectionist*, *supra* note 144.

146. *See 'Steve Jobs': Profiling An Ingenious Perfectionist*, *supra* note 144 (comparing Jobs and Apple—requiring end-to-end control of the product—to Gates and Microsoft—encouraging collaboration with other companies).

147. *See* Nick Wingfield, *Pamela Edstrom, Who Helped Shape Microsoft's Public Image, Dies at 71*, N.Y. TIMES, (Mar. 31, 2017), https://www.nytimes.com/2017/03/31/business/obituary-pamela-edstrom-microsoft.html (last visited Feb. 13, 2019) (noting Edstrom's work in pursuit of Microsoft's mission of putting a PC in every home) (on file with the Washington and Lee Law Review).

opportunity entrepreneurship.[148] He found that the former arises owing to a lack of other employment options, while the latter results from the deliberate choice to pursue an unexploited or underexploited business opportunity.[149] He further articulated that necessity entrepreneurship causes negative GDP growth,[150] while opportunity entrepreneurship has a positive and significant effect on social and economic development.[151] For example, in 2012, the start-up company ReWalk successfully developed a battery-powered exoskeleton device that allows paralyzed individuals to walk upright.[152] The next section clarifies the importance of such innovation agents in society.

3. The Significance of Entrepreneurs

What is it about entrepreneurs that merits distinct consideration? Simply put, as agents of innovation, entrepreneurs are instrumental in driving economic development.[153] They destroy

148. *See* Zoltán J. Ács, *How is Entrepreneurship Good for Economic Growth?*, 1 INNOVATIONS 97, 98 (2006) ("We found that necessity entrepreneurship has no effect on economic development while opportunity entrepreneurship has a positive and significant effect.").

149. *See id*. at 97 (distinguishing "'necessity entrepreneurship,' which is having to become an entrepreneur because you have no better option, from 'opportunity entrepreneurship,' which is an active choice to start a new enterprise based on the perception that an unexploited or underexploited business opportunity exists").

150. *See id*. at 98 (considering former wage workers forced into necessity entrepreneurship by a lack of options).

151. *See id*. at 99 ("[W]e find a positive relationship between the opportunity ratio and GDP per capita.").

152. *See* Ilya Pozin, *10 Health Tech Companies Changing the World*, FORBES (June 1, 2014, 1:12 PM), https://www.forbes.com/sites/ilyapozin/2014/06/01/10-health-tech-companies-changing-the-world/#67157f8bdab0 (last visited Feb. 13, 2019) ("After an accident left Amit Goffer in a wheelchair for life, he started developing a system that would enable people with spinal cord injuries to walk again.") (on file with the Washington and Lee Law Review); *see also* Heather Kelly, *Young Companies, Big Ideas*, CNN (Oct. 2015), https://www.cnn.com/interactive/2014/10/tech/cnn10-start-ups/ (detailing upcoming start-ups, such as Airwave which develops software and application for drones) (on file with the Washington and Lee Law Review).

153. *See, e.g.*, PETER F. DRUCKER, INNOVATION AND ENTREPRENEURSHIP: PRACTICE AND PRINCIPLES 21 (1985) (discussing the example of McDonald's, which did not invent a new product but "drastically upgraded the yield from resources, and created a new market and a new customer"); PAUL GOMPERS & JOSH LERNER,

the basis of the old economy and pave the way to a new economic order of prosperity and welfare through their innovations.[154] Take WeWork for example, a recent start-up that rents out shared workspaces and "community-building programming."[155] Its core concept is that traditional cubicle-like office setting does not contribute to workplace productivity and happiness.[156] And reporters claim it is on to something.[157] WeWork provides businesses a variety of options to rent relaxed office spaces, such as an office, a suite, an entire headquarters, or just a desk in a common area.[158] It creates environments that increase productivity, innovation, and collaboration via community managers, professional and social events, and cocktail hours.[159] It also provides valuable networking opportunities among individual workers and across company lines, creating new opportunities

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FINANCIAL CONTRACT DESIGN IN THE WORLD OF VENTURE CAPITAL, THE VENTURE CAPITAL CYCLE 10–11 (2d. ed. 2004) (examining empirically the various aspects of economic contribution of venture capital fundraising by independent venture partnerships); ISRAEL M. KIRZNER, COMPETITION AND ENTREPRENEURSHIP 81 (1978) (arguing that "entrepreneurship is important primarily in enabling the market process to work itself out in all contexts"); FRANK H. KNIGHT, RISK, UNCERTAINTY, AND PROFIT 41 (1921) (claiming that the entrepreneur plays a unique importance in a productive economy as enterprise is the "only really productive factor" while land, labor, and capital are the "means" of production); SCHUMPETER, *supra* note 58, at 74 (referring to entrepreneurship as the "fundamental phenomenon of economic development").

154. *See* SCHUMPETER, *supra* note 58, at 74 (describing entrepreneurs as carrying out a "new combination of means of production").

155. Laura Bliss, *How WeWork has Perfectly Captured the Millennial Id*, ATLANTIC (Mar. 2018), https://www.theatlantic.com/magazine/archive/2018/03/wework-the-perfect-manifestation-of-the-millennial-id/550922/ (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review).

156. *See id*. ("[WeWork] promises to 'humanize' work, making the office a more creative place, with the right lighting, the right snacks, and, crucially, the right people.").

157. *See id*. ("Despite the company's occasional excesses, WeWork offices are more pleasant than many a soulless cubicle farm . . . .").

158. *See Workspace*, WEWORK, https://www.wework.com/workspace (last visited Feb. 13, 2019) (providing membership options ranging from on-demand access to private floors) (on file with the Washington and Lee Law Review).

159. *See* Bliss, *supra* note 155 ("Members are encouraged to mingle, network, and leverage one another's talents, frequently under the auspices of a corporate sponsor.").

within their innovative spaces.[160] This company not only revolutionized the commercial real-estate industry, but also hosted innovations in its space.[161]

Contemporary economic theorist William Baumol emphasized the importance of entrepreneurs in stimulating economic growth.[162] He argued that economic evolution is dependent on two determinants—namely, innovation and entrepreneurs.[163] Baumol argued that entrepreneurs are responsible for revolutionary breakthroughs.[164] He attributed the success of the capitalist economy primarily to competitive pressures by players deploying innovation as their primary weapon.[165] Today, cutting-edge innovation, rather than pricing, is the key to economic success.[166] Facebook is a free social networking site, and yet, its founder Mark Zuckerberg's equity is worth around $73 billion.[167] Facebook completely changed the way humans interact, and as of May 3,

160. *See id*. ("Genuine connections do occur—sometimes at happy hours and often through WeWork's online member network, where people share marketing tips, sell furniture, organize cryptocurrency seminars.").

161. *See id*. ("Craft beer and cucumber water poured from kitchen taps. Laptoppers in jeans and toques clacked along to MGMT in the wood-paneled common area.").

162. *See* WILLIAM BAUMOL, THE FREE MARKET INNOVATION MACHINE: ANALYZING THE GROWTH MIRACLE OF CAPITALISM 2 (2002) ("[O]nce capitalism was in place and fully operational, a flow of innovation and the consequent rise in productivity and per capita gross domestic product were to be expected.").

163. *See id*. at 10, 70 (noting that capitalism creates a "cascade of innovation" and concluding that entrepreneurs "have played a critical role in the growth performance of the capitalist economy").

164. *See id*. at 20–21 (listing important innovations by U.S. small firms in the twentieth century such as the incandescent lamp, the dial telephone, and the electronic calculator).

165. *See id*. at 19 ("[T]he patently extraordinary growth record of the free-enterprise form . . . is in large part attributable to the pressures of the free market upon the business firm . . . .").

166. *See id*. at 3–4 ("It is clear that innovation plays a far larger role in the activities of many key firms and industries than the current theoretical literature takes into account.").

167. *See* Rob Wile, *Mark Zuckerberg Has Made More Money Than Anyone Else in 2017—Even Jeff Bezos*, TIME (Aug. 8, 2017), http://time.com/money/4891103/mark-zuckerberg-jeff-bezos-billionaires-net-worth-2017/ (last visited Feb. 13, 2019) ("Zuckerberg has earned $23.1 billion year-to-date through Monday, putting his overall wealth at $73.1 billion.") (on file with the Washington and Lee Law Review).

2017, had almost two billion monthly users.[168] Rapid diffusion of such innovation throughout the economy ultimately results in economic growth.[169]

Other scholars also view entrepreneurs as important agents that stimulate an economy.[170] American economist and Nobel laureate Robert Solow acknowledged that "long-term economic growth has moved to the top of the political and intellectual agenda."[171] He established the primacy of innovations as responsible for economic growth through increases in productivity.[172] Joseph Stiglitz also emphasized the central role of entrepreneurs in driving technological progress and economic development.[173] They all postulated that entrepreneurial change is a core variable of economic growth driven by the introduction of innovation by entrepreneurs.[174] Entrepreneurs contribute to

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168. *See* Seth Fiegerman, *Facebook Tops 1.9 Billion Monthly Users,* CNN MONEY (May 3, 2017), http://money.cnn.com/2017/05/03/technology/facebook-earnings/index.html (last visited Feb. 13, 2019) ("[T]he social network reported hitting 1.94 billion monthly users as of the end of the March quarter.") (on file with the Washington and Lee Law Review).

169. *See* BAUMOL, *supra* note 162, at 4 (pointing to the computer industry for example, "whose new and improved models appear constantly, each manufacturer battling to stay ahead of its rivals"); BAUMOL, *supra* note 32, at ch. 1.

170. *See, e.g.*, Edwin Harwood, *The Sociology of Entrepreneurship*, *in* ENCYCLOPEDIA OF ENTREPRENEURSHIP 95 (Calvin A. Kent, Donald L. Sexton & Karl H. Vesper eds., 1982) ("It is innovation that determines the distinction between a run-of-the-mill small business and a new high-potential venture organization is difficult to justify"); Licht, *supra* note 119, at 821 n.9 (drawing on the academic efforts of Mirham Van Praag, Robert F. Hébert and Albert N. Link).

171. *See* Robert Solow, *Review of Prophet of Innovation: Joseph Schumpeter and Creative Destruction, by Thomas K. McCraw*, ECONOMIST'S VIEW (May 17, 2007), http://economistsview.typepad.com/economistsview/2007/05/robert_solow_on.html (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review).

172. *See* Robert M. Solow, *Technical Change and the Aggregate Production Function*, 39 REV. ECON. & STAT. 312, 316 (1957) ("Thus about 8 cents of the 65 cent increase can be imputed to increased capital intensity, and the remainder to increased productivity.").

173. *See generally* NEW DEVELOPMENTS IN THE ANALYSIS OF MARKET STRUCTURE 519 (J. Stiglitz & G. Frank Mathewson eds., 1986) (providing sixteen essays that test economic development hypotheses).

174. *See* Horst Hanusch & Andreas Pyka, *Principles of Neo-Schumpeterian Economics*, 31 CAMB. J. ECON. 275, 276 (2007) ("Neo Schumpeterian Economics

economic growth by creating new businesses and jobs, intensifying competition, and increasing productivity.[175] Sidecar was a start-up founded in 2011 and was a ride-sharing company which experimented with new services and features.[176] This new business model spawned many successful spin-offs, such as Uber and Lyft, creating a multitude of new jobs for people all over the world.[177] It forced competition between ride-sharing companies, filling a niche that inadequate public transportation and taxi companies had been unable to fill.[178] To summarize, entrepreneurial firms are important drivers of new discoveries and economic growth.[179] But these drivers are not limited to exclusively entrepreneurial agents. Innovation can also be fostered through a process of intrapreneurship in divisions or employees within established firms, as the next Part demonstrates.[180]

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puts a strong emphasis on knowledge, innovation and entrepreneurship at the micro level."); Paul M. Romer, *The Origins of Endogenous Growth*, 8 J. ECON. PERSP. 3, 3 (1994) (offering an assessment of scale-variant Schumpeterian growth model).

175. *See* CHRISTENSEN, *supra* note 68, at 86 (contending that established firms are "captive to [their] financial structure and organizational culture").

176. *See* Douglas MacMillan, *Sidecar Technologies Shuts Ride-Sharing and Delivery Service*, WALL ST. J. (Dec. 29, 2015), https://www.wsj.com/articles/sidecar-technologies-shuts-ride-sharing-and-delivery-service-1451450372 (last visited Feb. 13, 2019) ("Sidecar, founded a year after Uber in 2011, aimed to set itself apart from ride-sharing competitors by experimenting with new services and features.") (on file with the Washington and Lee Law Review).

177. *See* Michael Goldstein*, Uber And Lyft: The Cost and Benefits of Disruption*, FORBES (May 9, 2018, 4:39 PM), https://www.forbes.com/sites/michaelgoldstein/2018/05/09/uber-and-lyft-the-cost-and-benefits-of-disruption/ (last visited Feb. 13, 2019) (discussing part-time and full-time job opportunities through Uber and Lyft) (on file with the Washington and Lee Law Review).

178. *See id*. ("Uber and Lyft, and its peers around the world, spend hundreds of millions of dollars subsidizing the cost of cheaper rides for passengers and doling out incentives to add new drivers.").

179. *See* John Haltiwanger, *Entrepreneurship and Job Growth*, *in* ENTREPRENEURSHIP, GROWTH, AND PUBLIC POLICY, *supra* note 44, at 119 ("[I]n the United States, the market selection dynamics are productivity-enhancing.").

180. *See generally* CHRISTENSEN, *supra* note 68, at 105 (describing the phenomenon of intrapreneurship in a large knowledge-intensive industrial firm). *See also* Arshad M. Khan & V. Manopichetwattana, *Innovative and Noninnovative Small Firms: Types and Characteristics*, 35 MGMT. SCI. 597, 599 (1989) (describing a questionnaire employed to analyze innovation variables); Smith & Ueda, *supra* note 43, at 356 ("Scholarly interest in intrapreneurship are clustered around the issue of how to circumvent organizational inertia in

III. Intrapreneurship

The last few decades have witnessed a growing interest in legal scholarship on the topic of entrepreneurship.[181] Nevertheless, its companion—intrapreneurship—has garnered less attention.[182] In the past, most entrepreneurs were self-employed or worked in independently owned firms.[183] As the world increasingly globalized with the passage of time, it became clear that many discoveries could not be delivered to the marketplace without certain agents.[184]

Entrepreneurial firms and large conglomerates have often been viewed as antipoles. While the former has been portrayed as young, creative, and flexible firms,[185] the latter symbolized corporations with much bureaucracy, hierarchy, and stagnation.[186]

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established firms and to get novel things done, as opposed to conducting routine business.").

181. *See supra* notes 37, 49, 185 and accompanying text.

182. *See, e.g.*, Robert A. Burgelman, *A Process Model of Internal Corporate Venturing in the Diversified Major Firm*, 28 ADMIN. SCI. Q. 223, 223 (1983) ("The actual processes of corporate entrepreneurship and strategic change, however, remain less well understood. This is probably because these processes in such firms are complex and are difficult and costly to research."); *see also* Ibrahim, *supra* note 35, at 1741 ("[Intrapreneurship . . . is substantial, important, and understudied."); Smith & Ueda, *supra* note 43, at 356 ("Scholarly interests in intrapreneurship are clustered around the issue of how to circumvent organizational inertia in established firms and to get novel things done, as opposed to conducting routine business.").

183. *See* MANSEL G. BLACKFORD, A HISTORY OF SMALL BUSINESS IN AMERICA 104 (2d ed. 2003) (describing the way small, medium, and large size firms interacted).

184. *See id*. (explaining that if the market potential of a product from a small firm was too big, a large corporation would take it away).

185. *See* Wendy Guillies, Acting President and CEO, Ewing Marion Kauffman Found., Kauffman Foundation 2015 State of Entrepreneurship Address (Feb. 11, 2015) http://www.kauffman.org/~/media/kauffman_org/resources/2015/soe/2015_state_of_entrepreneurship_speech.pdf (describing those firms in her speech). In her speech, the Acting President and CEO of the Ewing Marion Kauffman Foundation describes those firms. *Id*.

186. *See* Todd R. Zenger, *Explaining Organizational Diseconomies of Scale in R&D: Agency Problems and the Allocation of Engineering Talent, Ideas, and Effort by Firm Size*, 40 MGMT. SCI. 708, 709 (1994) (examining scale diseconomies

Indeed, as firms become larger and more complex, their ability to maintain their growth rate, if based only on their mainstream business, becomes more challenging. More established organizations realized that if they wanted to remain viable they had to engage in a degree of entrepreneurial activity.[187] Sooner or later, firms like Apple and IBM had to find and exploit other related opportunities through internal corporate venturing or acquisition of related innovative prototypes that they could develop and market as their own.[188] Consequently, a more refined depiction of the innovation market began to incorporate two main complementary private agents of innovation—namely, the independent-entrepreneur and the established intrapreneurial firm.[189]

With the passage of time, large complex conglomerates assumed a dual role in the innovation process. First, they began to acquire existing discoveries from independent entrepreneurs and start-ups in order to develop and deliver them to the market.[190] In doing so, they have served as an exit hub for private entrepreneurship.[191] Second, these organizations began to cultivate corporate entrepreneurship or internal corporate venturing.[192] The latter refers to the process whereby firms engage

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and offering employment contracts as an explanation for diseconomies of scale in R&D).

187. *See* Burgelman, *supra* note 42, at 1363 (stating that if organizations want to continue to be viable they must support a degree of entrepreneurial activity within them).

188. *See* Robert A. Burgelman, *Designs for Corporate Entrepreneurship in Established Firms,* 26 CA. MGMT. REV. 154 (1984) ("Sooner or later, firms—Apples and IBMs alike—have and exploit opportunities in marginally related, even unrelated, areas through internal corporate venturing and/or acquisition.").

189. *See* BAUMOL, *supra* note 32, at 26 (recounting Schumpeter's expanded definition of the term "innovation").

190. *See infra* Part IV.B (describing the practice of firms attempting to prevent employees from seeking employment with competitors).

191. *See* Michael J. de la Merced, Nick Bilton & Nicole Perlroth, *Yahoo to Buy Tumblr for $1.1 Billion,* N.Y. TIMES, (May 19, 2013) https://www.nytimes.com/2013/05/20/technology/yahoo-to-buy-tumblr-for-1-1-billion.html (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review). Facebook bought the start-up photo sharing company Instagram for $1 billion. *Id.* In 2013, Yahoo acquired the popular blogging and social-media site for $1.1 billion. *Id*. Both were done in an attempt to expand on their already their established markets. *Id*.

192. *See id*. (describing Yahoo's plan for growing corporate entrepreneurship).

in diversification of its strategic operations through internal development.[193] Internal entrepreneurship became an important tool for firms to remain viable and competitive, whether during prosperous or turbulent economic times.[194] Indeed, studies have shown that innovation can also be fostered successfully through a process of intrapreneurship in divisions or employees within established firms.[195]

Schumpeter viewed the entrepreneur as one who "carries out new combinations."[196] Similarly, large, complex organizations take actions that result in new combinations of resources being carried out.[197] In the Schumpeterian sense, intrapreneurship is analogous to the process of individual entrepreneurship performed in the corporate entity by interlocking entrepreneurial activities of multiple participants.[198] Such internal development requires new resource combinations to extend the firm's activities in related areas and opportunities.[199] Apple's expansion from iPhones to the creation of the iPad in 2010 and the iWatch in 2013 exemplifies this.[200] While the majority of Apple's profits derive from sales of

193. *See id*. (explaining how Yahoo is broadening its developmental goals).

194. *See id*. (explaining Yahoo's strategy for staying relevant).

195. *See generally* CHRISTENSEN, *supra* note 68, at 105 (describing the phenomenon of intrapreneurship in a large knowledge-intensive industrial firm). *See also* Khan & Manopichetwattana, *supra* note 180, at 599 (describing a questionnaire employed to analyze innovation variables); Smith & Ueda, *supra* note 43, at 356 ("Scholarly interests in intrapreneurship are clustered around the issue of how to circumvent organizational inertia in established firms and to get novel things done, as opposed to conducting routine business.").

196. *See* JOSEPH A. SCHUMPETER, THE THEORY OF ECONOMIC DEVELOPMENT 10 (Redvers Opie trans., 1936) ("Economic activity may have *any* motive, even a spiritual one, but its *meaning* is always the satisfaction of wants.").

197. *See* R. R. Ellsworth, *Entrepreneurship in Big Business: The Impossible Dream?*, *in* ENTREPRENEURSHIP: WHAT IT IS AND HOW TO TEACH IT 282 (John J. Kao & Howard H. Stevenson eds., 1985) (describing the phenomenon of corporate entrepreneurship by employees in big and complex firms).

198. *See* Burgelman, *supra* note 42, at 1349. In the Schumpeterian sense, diversification through internal development is the corporate analog to the process of individual entrepreneurship. Corporate entrepreneurship, typically, is the result of the interlocking entrepreneurial activities of multiple participants.

199. *See id*. (describing entrepreneurship within a corporation).

200. *See* Andrew Clark, *Rupert Murdoch Says Apple's iPad is a 'Game-Changer' for News Media,* GUARDIAN (Aug. 5, 2010),

iPhones, its related products contributed to Apple's dominance in the market.[201] Its revenues multiplied from $65.2 billion in 2010, to $108.2 billion in 2011, to $182.8 billion in 2014, to $229.23 billion in 2017.[202] Intrapreneurship, therefore, extends "the firm's domain of competence and corresponding opportunity set through internally generated new resource combinations."[203] The following section will describe the facets of this process.

A. Internal Corporate Venturing

Intrapreneurship can occur in many ways.[204] Some scholars view it as simply internal new business development in existing corporations.[205] Others consider it as strategic renewal that

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https://www.theguardian.com/media/2010/aug/05/ipad-rupert-murdoch-apple-newscorp (last visited Feb. 13, 2019) (reporting Rupert Murdoch's praise for Apple's iPad) (on file with the Washington and Lee Law Review); *see also* Nina V. Gumberg, *Apple Trademark Application Faces Challenges In Russia*, LAW 360, (Jan. 24, 2014, 7:00 PM), https://www.law360.com/articles/500091/apple-trademark-application-faces-challenges-in-russia (last visited Feb. 13, 2019) (reporting that in 2013, Apple filed an application for a patent for a multifunctional mobile device, which the user can wear as a wristwatch) (on file with the Washington and Lee Law Review).

201. *See* Clark, *supra* note 200 (describing the impact the iPad has on the market).

202. *See Global Revenue of Apple from 2004 to 2017 (in billion U.S. dollars)*, STATISTA (Nov. 2017), https://www.statista.com/statistics/265125/total-net-sales-of-apple-since-2004/ (last visited Feb. 13, 2019) (providing a graphic depiction of Apple's revenue) (on file with the Washington and Lee Law Review).

203. Burgelman, *supra* note 188, at 154.

204. In this paper the terms "intrapreneurship" and "internal corporate venturing" will be used interchangeably. In recent years, there has also been other forms of internal entrepreneurship such as the Internal Corporate Joint Venturing (ICJV) that has characteristics of both traditional joint ventures and internal corporate venturing. *See* Edward J. Zajac, Brian R. Golden & Stephen M. Shortell, *New Organizational Forms for Enhancing Innovation: The Case of Internal Corporate Joint Ventures*, 17 MGMT. SCI. 170, 171 (1991) ("[T]he ("ICJV involves the creation of an internally-staffed venture unit that is semiautonomous, with the sponsoring organization maintaining ultimate authority.").

205. *See* Stephen Edward McMillan et al., *Millenials and Social Entrepreneurship: A Multiple Streams Analysis of Problems, Prospects, and Implications for Policy and Practice,* 21 GEO. PUB. POL'Y REV. 1, 8 (2016) ("Intrapreneurship is defined as working for a stable firm, with a stable position and paycheck, but with the autonomy to behave and innovate like an entrepreneur within the firm."); Smith & Ueda, *supra* note 43, at 357 ("Given the

involves the internal creation of new combinations of resources.[206] It often includes developing innovation that requires significant company resources beyond the year in which the expenditure is made.[207] Yet, usually extensions of the firms' existing products or services are *not* considered within the definition of the term.[208]

Internal corporate venturing can deliver innovations through various channels.[209] It includes, but is not limited to, new product departments, special business units, micro new internal ventures, new venture divisions, independent subsidiaries, and others.[210] Companies from the convenience store 7-11, Boots the Chemists, Visa and Citigroup financial firms, and BMW are investing in internal ventures and buying start-ups to keep up with cheap and constant R&D.[211] Lockheed Martin, Inc. has created a group known as "Skunk Works" where members of its group operate as their own division and are given complete freedom to develop innovative ideas.[212]

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traditional connections between economics and entrepreneurship studies, it is not surprising that the study of law and entrepreneurship has flourished among economists.").

206. *See* William D. Guth & Ari Ginsberg, *Guest Editors' Introduction: Corporate Entrepreneurship*, 11 STRATEGIC MGMT. J. 5, 6 (1990) ("Entrepreneurship involves the identification of market opportunity and the creation of combinations of resources to pursue it.").

207. *See* Ronald J. Gilson, *Locating Innovation: The Endogeneity of Technology, Organizational Structure, and Financial Contracting,* 110 COLUM. L. REV. 885, 904 (2010) ("The employer of an innovative employee and a venture capital fund have different capabilities and therefore different assessments of the value of the innovation that the employee has offered at auction.").

208. *See* Day, *supra* note 57, at 156 ("Not included were product/service extensions of existing product lines, capacity additions, or brand introductions by existing businesses.").

209. *See id*. (defining an internal corporate venture).

210. *See* Burgelman, *supra* note 188, at 163 (portraying the process of developing innovation in divisions in the same corporation).

211. *See If You Can't Beat Them, Buy Them*, ECONOMIST (Nov. 20, 2014), https://www.economist.com/finance-and-economics/2014/11/20/if-you-cant-beat-them-buy-them (last visited Feb. 13, 2019) (explaining how corporate enthusiasm for venture capitalism has increased) (on file with the Washington and Lee Law Review).

212. *See* Belinfanti, *supra* note 35, at 77 (explaining the benefits of such venture).

Successful intrapreneurship was found to depend on factors such as the availability of independent entrepreneurial activity at the operational level,[213] the ability of middle-level managers to promote these initiatives, and the capacity of top management to allow viable entrepreneurial initiatives to influence the corporate strategy.[214] Some firms treat intrapreneurship simply as a "safety valve" or "insurance."[215] They utilize it when the organization is not doing very well or is in need of extreme measures to reverse a continuous decline in sales and profits.[216] Scholars noted that this type of approach is not productive in the long run, and does not contribute to the development of the firm.[217] Successful intrapreneurial firms typically follow a "moving, anchored search" for new opportunities for growth and tend to invest greatly in R&D.[218] In order to cultivate successful internal venturing, intrapreneurial firms need to encompass both flexibility and

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213. *See* MALCOLM S. SALTER & WEINHOLD A. WOLF, DIVERSIFICATION THROUGH ACQUISITION 5 (1979) (indicating that administrative challenges of managing different kinds of diversified companies are important aspects of the process of diversification through acquisition).

214. *See* Burgelman, *supra* note 182, at 223 (reaching these conclusions during a study of "diversified major firms" or large agglomerates with widely diverse yet related businesses grouped into divisions whose general managers report to central corporate management); *see also* Eric von Hippel, *Successful and Failing Internal Corporate Ventures: An Empirical Analysis*, 6 INDUS. MARKETING MGMT. 163, 163 (1977) (conducting a study on ICV up to the commercialization phase without distinguishing between new product and new business development).

215. *See* Javed Navyar Malik & Rosli Bin Mahmood, *Facilitating Corporate Entrepreneurship in Public Sector Higher Education Institutions: A Conceptual Model,* 6 ISSUES IN SOC. & ENV. ACCT. 26, 29 (2012) (proposing a conceptual model that explains the public sector corporate entrepreneurial process).

216. *See* Ibrahim, *supra* note 35, at 1761 (arguing that well-run companies do not need to and do not have the motivation to invest in new technologies and innovations, when they have a large customer base already and have no need to go into less desirable and unexplored markets).

217. *See* Burgelman, *supra* note 42, at 1361 ("Only manipulating the structural context constitutes a rather crude and ineffective approach because the current structural context reflects the current concept of strategy, and autonomous strategic behavior necessarily falls outside the scope of the latter.").

218. *See* Gaurab Bhardwaj, John C. Camillus & David A. Hounshell, *Continual Corporate Entrepreneurial Search for Long-Term Growth*, 52 MGMT. SCI. 248, 251 (2006) (using DuPont's decision-making documents from 1900 to 1925, the authors developed process theory explanations for continual corporate entrepreneurial search for long-term growth).

structure.[219] An effective combination of these antonyms requires experimentation and adjustment.[220]

Studies found that successful intrapreneurship requires new managerial approaches and innovative administrative methods from top management as well.[221] Thus, middle-level managers play a crucial role in the innovation process in intrapreneurial firms.[222] They support autonomous strategic initiatives by employees-intrapreneurs, combine them with the firm's capabilities, and pitch them to top management.[223] Management's critical contribution is in recognizing opportunities for change and allowing intrapreneurs to redefine the organizational strategic context [224] The PlayStation has been a key player in the gaming console market and was invented by a low-level employee who tinkered with his daughter's Nintendo.[225] His immediate supervisors at Sony did not enthusiastically celebrate his ideas, but more senior leaders saw the potential in this new creation and pushed for the creation and introduction to market of the PlayStation.[226]

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219. *See* Burgelman, *supra* note 42, at 1349 (1983) (similarly discussing the need for diversity and order for successful internal corporate venturing).

220. *See id.* ("Large, diversified organizations need both order and diversity in strategy for their continued survival.").

221. *See id.* (noting that top management should control the level and the rate of change rather than the specific content of entrepreneurial activity).

222. *See id.* ("Middle level managers play a crucial role in this through their support for autonomous strategic initiatives early on, by combining these with various capabilities dispersed in the firms operating system, and by conceptualizing strategies for new areas of business.").

223. *See id.* ("[N]ew managerial approaches and innovative administrative arrangements are required to facilitate the collaboration between entrepreneurial participants and the organizations in which they are active.").

224. *See id.* at 1350 ("The task of strategic management is to maintain an appropriate balance between these fundamentally different processes. These insights have implications for the design of organizational arrangements and for the development of strategic managerial skills.").

225. *See* Ibrahim, *supra* note 35, at 1755.

226. *See id.* ("Though his immediate supervisors were not particularly amused, senior leaders saw the promise of the new creation and were open to innovation at a time before 'intrapreneurship' was a developed principle.").

Intrapreneurial enterprises sustain themselves by making sure they spend as much on innovation as their competitors do.[227] They compete in a race over who gets access to breakthroughs first.[228] Since these conglomerates constantly compete over R&D efforts, they dare not unwind their investments in innovation.[229] Apple, Amazon, and Google are perhaps today's biggest rivals.[230] They are all large conglomerates and in some ways arch enemies when it comes to innovative new products and services.[231] In 2016, Apple spent $10.39 billion on R&D, the most it had ever spent in one year at that point.[232] However, it still trailed behind Amazon and Google who are the biggest spenders on R&D.[233] Overall, society benefits from this type of rivalry, as it guarantees a constant flow of innovations.[234]

Quick product lifecycles result in the restrained ability of the firm to recoup R&D investments.[235] Therefore, intrapreneurial

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227. *See* BAUMOL, *supra* note 32, at 28 (describing the competition as an arms race, in which the firms feel they need to match their competitors spending on the innovation process).

228. *See id*.

229. *See id*. ("The arms race character of innovation in these large firms drives each company to seek ways of minimizing the chance that its rivals will gain access to outside breakthroughs before it does.").

230. *See* Paul J. Lim & Taylor Tepper, *Apple, Amazon, or Google: Who Will Win the Battle of the Tech Titans?*, TIME (Jan. 8, 2015), http://time.com/money/3656571/apple-amazon-google/ (last visited Feb. 13, 2019) (describing the rivalry between Apple, Amazon, and Google) (on file with the Washington and Lee Law Review).

231. *See id*. (describing the rivalry between Microsoft, Intel, and Cisco Systems in the 1990s and Apple, Google, and Amazon as their successors).

232. *See* Kif Leswig, *Apple is Spending Billions on Secret R&D Projects—and It Keeps Spending More,* BUS. INSIDER (Feb. 1 2017, 10:49 AM), http://www.businessinsider.com/apple-rd-spend-charts-2017-2 (last visited Feb. 13, 2019) (reporting that Apple spent $10.39 billion on R&D in 2016) (on file with the Washington and Lee Law Review).

233. *See* Justin Fox, *The Big Spenders on R&D,* BLOOMBERG (Apr. 29, 2016, 4:17 PM), https://www.bloomberg.com/view/articles/2016-04-29/amazon-and-facebook-are-big-spenders-on-r-d (last updated May 2, 2016, 8:05 PM) (last visited Feb. 13, 2019) (reporting that Apple spends less on R&D than Amazon and Google) (on file with the Washington and Lee Law Review).

234. *See* BAUMOL, *supra* note 32, at 28 (equating the competitive rivalries with an arms race).

235. *See* Gilson, *supra* note 207, at 904 (explaining that at some point increasing internal incentives creates costs to the employer's R&D that are greater than the innovation's value).

enterprises often focus on predictable success by implementing categorical discoveries with proven commercial potential.[236] In 2006, the yogurt company Danone developed an enriched yogurt with essential nutrients known as Grameen Danone, a twist on their already-existing products.[237] Danone then partnered with the Bangladeshi government to deliver the product cheaply to its population to help with the malnourishment problem.[238] Through this innovation, they were able to leverage their success and create their renowned Activia yogurt.[239] Without the work on the yogurt for Bangladesh, Danone executives admitted they probably would never have come up with Activia and prevailed in their market.[240]

Intrapreneurial firms also pursue innovations by making incremental improvements and adding product features that enhance their products' functionality and accessibility.[241] These improvements may be more significant than a revolutionary prototype discovery to end users at times.[242] Every incremental development may seem insignificant on its own, but when added together, these developments turn out to be quite remarkable.[243] For example, the first Intel processor was slow, bulky, and clumsy,

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236. *See* Dr. Ad Huijser, Exec. Vice President and Chief Tech. Officer, Royal Phillips Electronics (Tilburg, The Neth., Sept. 2003) quoted in BAUMOL, *supra* note 32, at 25. In established businesses, innovation is mostly shaped through small, incremental steps of additional features to augment basic functionalities. With short product lifecycles, time to recoup R&D investments is limited. Success is relatively predictable through the execution of well-defined innovation processes and in-depth knowledge of their markets in the respective business units.

237. *See* Belinfanti, *supra* note 35, at 82 (conducting a case study of Danone).

238. *See id*.

239. *See id*. (describing how Activia yogurt was developed).

240. *See id*. ("Activia has allowed Danone to broaden their yogurt offerings and market potential.").

241. *See* Gladwell, s*upra* note 142 (explaining how Steve Jobs often developed his products by tweaking other inventions and making improvements).

242. *See id*. (providing examples of occasions where an initial inventor may be overshadowed by the improvements of others shortly after the initial invention).

243. *See id*. (describing how the visionary starts the task, then the tweaker makes improvements, which are then tweaked and result in an even better product).

but incremental upgrades over the years made it speedy, small, and powerful.[244] Collectively, small enhancements contributed to the development of powerful computing power—a discovery that is arguably much more revolutionary and beneficial to society than that of the first laptop in 1981.[245] True, the initial invention, led by entrepreneur Adam Osborne, was necessary to ignite Intel's later upgrades.[246] Yet, it was the combination of both entrepreneurial and intrapreneurial agents that made the effective portable computer available to us all.[247]

Intrapreneurial conglomerates usually possess an enhanced ability to defray the high costs of the research and experimentation required to take innovation breakthroughs to the next level.[248] The operation economies of scale, age, and scope in mass production and distribution work to their benefit.[249] Before its launch, Apple spent over $150 million on the first prototype of the iPhone, with the project taking almost three years.[250] Their large team of intrapreneurs worked seven days a week, and Jobs himself worked over eighty hours a week.[251] In the first ten years since the iPhone's

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244. *See* BAUMOL, *supra* note 32, at 33 (describing the first Intel processor).

245. *See id*. at 33 ("[S]uch improvements surely contribute far more computing capacity than as provided by the original revolutionary breakthrough—the invention of the electronic computer.").

246. *See* Matt Rosoff, *The Rise and Fall of the Man Who Invented the Portable Computer*, BUS. INSIDER (Apr. 1, 2011, 10:01 AM) https://www.businessinsider.com.au/the-amazing-rise-and-fall-of-the-first-portable-computer-2011-4 (last visited Feb. 13, 2019) (explaining that Adam Osborne was actually the first person to invent the portable computer) (on file with the Washington and Lee Law Review).

247. *See* BAUMOL, *supra* note 32, at 33 (explaining how the combined efforts of both Blockbuster and incremental innovators made possible the computers that serve us today).

248. *See id*. at 28 (explaining that funding for innovation is increasingly supplied by oligopolistic enterprises).

249. *See* Mirit Eyal-Cohen, *The Cost of Inexperience*, 69 ALA. L. REV. 1, 5 (2017) (demonstrating the advantage of entities possessing economies of experience in defraying regulatory costs).

250. *See* Fred Vogelstein, *And Then Steve Said, "Let There Be an iPhone,"* N.Y. TIMES (Oct. 4, 2013), https://www.nytimes.com/2013/10/06/magazine/and-then-steve-said-let-there-be-an-iphone.html (last visited Feb. 13, 2019) ("One senior executive believes that more than $150 million was spent creating the first iPhone.") (on file with the Washington and Lee Law Review).

251. *See id*. (describing the amount of time and work that went into creating the iPhone).

inception, Apple sold 1.2 billion devices with an estimated $100 billion dollars of profit for the company.[252] In addition, Apple's large output and vast experience has allowed Apple to reduce the average unit cost.[253] Through the operation of the law of large numbers, economies of scale reduce the average unit cost as the scale of output increases.[254] Indeed, Schumpeter recognized technological innovation as a scale-intensive activity positively related to organizational size.[255]

Economies of age are also beneficial in providing intrapreneurial firms with insight, both as players within the marketplace and of the marketplace environment.[256] The older the enterprise, the more time its decision-makers have had to become informed about the marketplace and become acquainted with the landscape.[257] Bill Hewlett and Dave Packard founded HP in 1939 by selling audio oscillators from a car garage.[258] Today, the company's products include an extensive range of IT products such

252. *See* Ian Morris, *Apple Has Sold 1.2 Billion iPhones Worth $738 Billion in 10 Years*, FORBES, (June 29, 2017, 12:25 PM), https://www.forbes.com/sites/ianmorris/2017/06/29/apple-has-sold-1-2-billion-iphones-worth-738-billion-in-10-years/#4848dd961a18 (last visited Feb. 13, 2019) (reporting on the sales and profits of the iPhone) (on file with the Washington and Lee Law Review).

253. *See* GEORGE J. STIGLER, THE ORGANIZATION OF INDUSTRY 71 (1968) (explaining the theory of the economies of scale). At some point we observe diseconomies of scale, namely when the cost per unit ceases to fall (minimum efficient scale) and then begins to increase with scale. *See* Eyal-Cohen, *supra* note 249, at 880. From this point on, larger entities produce goods and services at increased cost-per-unit. *Id*. Some reasons that attribute to this phenomenon can be traced to increasing bureaucracy, duplication of efforts, office politics, etc. *Id*.

254. *See* R. Preston McAfee & John McMillan, *Organizational Diseconomies of Scale*, 4 J. ECON. & MGMT. STRATEGY 399, 400 (1995) (pointing to hierarchical distance increases between the information source and the decision maker as the reason for this phenomenon).

255. *See* JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM, AND DEMOCRACY 5 (1942) (arguing that Marxism was successful because of scientific achievement).

256. *See* Eyal-Cohen, *supra* note 249, at 872 ("[E]conomies of age can be beneficial to achieving dual marketplace familiarity advantages.").

257. *See id.* at 872–73 (explaining the benefits of an older enterprise).

258. *See HP: Making it Matter*, SUCCESSSTORY, https://successstory.com/companies/hewlett-packard (last visited Feb. 13, 2019) (reviewing HP's history) (on file with the Washington and Lee Law Review).

as hardware and software services.[259] International Business Machines Corporation (IBM) was founded in 1911 and initially focused on producing computing scale machines and time clocks.[260] Nowadays, it is the world leader in computer hardware, middleware and software, and also provides hosting and consulting services.[261] Information about the structure, composition, rules, politics, state of competition, and possible failures are examples of such beneficial knowledge.[262] Since market information is a valuable and costly factor of production, new entrants to the market experience a net increase in their cost per unit as they pursue such knowledge.[263] This, in turn, lowers the present value of their future profits.[264]

Economies of scope are similar to economies of age when observed in connection with market experience; yet, the focus of economies of scope is not on the longevity of the enterprise, but on its previous market interaction.[265] Expertise and specialized knowledge constitute the essence of economies of scope.[266] An enterprise can reduce its overall cost-per-unit when it produces two or more interrelated products, compared to enterprises that produce each product separately and in similar quantities.[267] For

259. *See id*. (listing HP's current products).

260. *See IBM is Founded*, IBM, http://www-03.ibm.com/ibm/history/ibm100/us/en/icons/founded/ (last visited Feb. 13, 2019) (exploring IBM's history) (on file with the Washington and Lee Law Review).

261. *See IBM Buys Merge Healthcare to Boost Watson Health Cloud*, BLOOMBERG (Aug. 6, 2015), https://www.bloomberg.com/news/videos/2015-08-06/ibm-buys-merge-healthcare-to-boost-watson-health-cloud (last visited Feb. 13, 2019) (detailing HP's latest acquisition and venture into the health care industry) (on file with the Washington and Lee Law Review).

262. *See* Eyal-Cohen, *supra* note 249, at 873 (listing examples of beneficial knowledge).

263. *See id*. (explaining the barriers to market entry).

264. *See id*. (concluding that new entrants to markets will experience a loss to prevent value of future profits).

265. *See* Edward B. Brook, *The Logic and (Uncertain) Significance of Institutional Shareholder Activism*, 79 GEO. L.J. 445, 465 (1991) (discussing economies of scale in connection to the production function of the collective good).

266. *See* Eyal-Cohen, *supra* note 249, at 875 ("The essence of economies of scope is expertise and specialized knowledge.").

267. Nevertheless, economies of scope do not necessitate that goods be sold together. *See* Ian Ayres, *Rationalizing Antitrust Cluster Markets*, 95 YALE L.J. 109, 117–18 (1985) (stating that economies of scope do not necessitate that goods be sold together).

example, Apple may use existing knowledge, expertise, and equipment from its iPhone and iPad to produce the iWatch, thereby decreasing the cost-per-unit for its entire line of products compared to a single-product manufacturer. Amazon began as an online bookstore but easily diversified its products to audiobooks and video downloads/streaming. In other words, producers' average production cost decline as they increase their range of products (scope of production) within similar categories.[268]

Individual entrepreneurs perform a critical role in uncovering opportunities and knowledge that would otherwise remain hidden.[269] However, they may not have what it takes to effectively execute their discoveries in the marketplace.[270] Entrepreneurs lack economies of experience (size, scope, and age) that help defray various costs.[271] Economies of experience allow intrapreneurial conglomerates to recognize and capitalize on the innovative ideas of entrepreneurs by offering attractive terms that induce entrepreneurs to sell their innovations.[272] Walmart purchased the e-commerce start-up Jet.com, a company that developed a real-time pricing algorithm that prices goods based on their locations in distribution centers.[273] General Electric agreed to buy ServiceMax, a software program that "provides information about off-site workers and equipment repairs."[274] For entrepreneurs,

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268. *See id.* at 117 ("[P]roducts that are explicitly tied together by producers are routinely aggregated into one market.").

269. *See* BAUMOL, *supra* note 32, at 26 (distinguishing between innovative and replicative entrepreneurs).

270. *See id.* at 26–27 ("[F]or example, large firms like Boeing, which took on the task of improving the Wright brothers' invention.").

271. *See* Eyal-Cohen, *supra* note 249, at 876 ("Entities lacking economies of experience may have no choice but to merge with entities possessing sufficient experience.").

272. *Cf. id.* ("It is easier for these firms to vertically integrate with newcomers or take over their competitors.").

273. *See* Hadley Malcolm, *Why Walmart is Spending $3B for Online Seller Jet.com*, USA TODAY (Aug. 8, 2016), https://www.usatoday.com/story/money/2016/08/08/walmart-acquires-jetcom-for-3-billion/88386988/ (last visited Feb. 13, 2019) (explaining why Walmart acquired Jet.com) (on file with the Washington and Lee Law Review).

274. Leslie Picker, *For Non-Tech Companies, If You Can't Build It, Buy a Start-Up*, N.Y. TIMES, Jan. 2, 2017, at B1.

time is of the essence as they desire both capital and ways to develop and distribute their innovation quickly.[275] They know competitors will attempt to duplicate discoveries as soon as the knowledge is made accessible.[276] Instead of developing the product and distribution network independently, many entrepreneurs prefer to move faster by adjoining existing larger firms with resources, market power, and proven record.[277] More notably, certain R&D with high risk and long progression, such as pharmaceuticals drugs, is better developed within large firms that possess FDA protocols, productions facilities, and market reputation.[278]

Although economies of experience generally constitute a beneficial feature of intrapreneurship by lowering the costs of innovation research and production, increases in age and scope may result in enlarged costs.[279] This phenomenon is referred to as diseconomies of experience, and it can occur for a variety of reasons.[280] For instance, established firms may suffer from duplication of efforts and office politics.[281] Firm bureaucracy and lower-level organizational inertia often directly correlates to firm size and can undermine innovativeness.[282] Other factors such as

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275. *See* Eyal-Cohen, *supra* note 22, at 981 (arguing that entrepreneurs have a short time frame to capitalize on their innovations).

276. *See id*. at 981–82 ("Other market participants become motivated to learn how to reproduce these discoveries.").

277. *See* DONALD A. HAY & DEREK J. MORRIS, INDUSTRIAL ECONOMICS: THEORY AND EVIDENCE 10 (1979)

278. *See* Wesley M. Cohen & Richard C. Levin, *Empirical Studies of Innovation and Market Structure*, *in* 2 HANDBOOK OF INDUSTRIAL ORGANIZATION 1059, 1067 (Richard Schmalensee & Robert D. Willig eds., 1989) (claiming that certain nonmanufacturing activities may be better developed within large firms).

279. S*ee, e.g.*, Jesper B. Sørensen & Toby E. Stuart, *Aging, Obsolescence, and Organizational Innovation*, 45 ADMIN. SCI. Q. 81, 82 (2000) (finding that a firm's age is associated with not only increases in rates of innovation but also the difficulties of keeping pace with external developments).

280. *See* Eyal-Cohen, *supra* note 249, at 880 ("[O]ld-timers begin to produce goods and services at an increased cost-per-unit.").

281. *See* Donald C. Hambrick & Ian C. MacMillan, *Efficiency of Product R&D in Business Units: The Role of Strategic Context,* 28 ACAD. OF MGMT. J. 527, 530 (1985) (noting medium-sized firms have lower negative effects of firm bureaucracy).

282. *See* Michael L. Tushman & Elaine Romanelli, *Organizational Evolution: A Metamorphosis Model of Convergence and Reorientation, in* 7 RESEARCH IN ORGANIZATIONAL BEHAVIOR 171, 181 (Barry M. Straw & L.L. Cummings eds.,

increased bureaucratic processes, multi-level administrative procedures, controlling management, and adherence to traditions can also hinder innovation in established firms.[283] The arc of Kodak's rise and fall in the camera industry is illustrative. For much of the twentieth century, Kodak was the leading innovator in cameras and film, pioneering push-and-shoot cameras and Kodachrome film.[284] Its technological breakthroughs resulted in a 90% market share of the photographic film industry and an 85% market share in the camera industry.[285] Steve Sasson, an engineer for Kodak, created the first digital camera in the 1970s.[286] Rather than capitalize on the innovation, Kodak remained focused on film cameras, partly out of management's fear that digital cameras would cannibalize their lucrative sale of film.[287] Despite the technological head start, when digital cameras became prevalent

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1985) ("[P]erformance and inertia . . . constitute underlying forces driving evolution.").

283. *See* John C. Panzar & Robert D. Willig, *Economies of Scope*, 71 AM. ECON. REV. 268, 268 (1981) (discussing the multi-product cost function of economies of scope as a form of complementarity in production).

284. *See* David Usborne, *The Moment it All Went Wrong for Kodak*, INDEPENDENT (Jan. 20, 2012), https://www.independent.co.uk/news/business/analysis-and-features/the-moment-it-all-went-wrong-for-kodak-6292212.html (last visited Feb. 13, 2019) (narrating Kodak's history) (on file with the Washington and Lee Law Review).

285. *See id*. (arguing that Kodak controlled the camera film industry in 1976).

286. *See* Claudia H. Deutsch, *At Kodak, Some Old Things Are New Again*, N.Y. TIMES, May 2, 2008, at C1 (detailing Kodak's reaction to the first filmless camera).

287. *See id*. (quoting Steve Sasson as saying, "My prototype was big as a toaster, but the technical people loved it. But it was filmless photography, so management's reaction was, 'that's cute—but don't tell anyone about it'"). Kodak executives were aware of the effect that the first digital camera would have on the film market. *See* Usborne, *supra* note 284 (quoting a former Kodak vice-president as saying, "We developed the world's first consumer digital camera but we could not get approval to launch or sell it because of fear of the effects on the film market"). However, business analysts believe that there may be other reasons why Kodak failed to capitalize on its innovation. *See* Scott D. Anthony, *Kodak's Downfall Wasn't About Technology*, HARV. BUS. REV., https://hbr.org/2016/07/kodaks-downfall-wasnt-about-technology (last visited Feb. 13, 2019) (positing that Kodak's failure may be rooted in a failure to understand how digital cameras would be used, rather than a rejection of innovation) (on file with the Washington and Lee Law Review).

in the 1990s and 2000s, Kodak found itself trailing its competitors in market share.[288] By 2012, Kodak was preparing for bankruptcy.[289] Therefore, economies of experience can both boost or impede the ability of established conglomerates to take risks and deliver innovations to the market.

To conclude, many intrapreneurial firms that possess economies of scale, scope, and age usually have an increased capability to develop internally or acquire external innovations.[290] However, they may also encounter diseconomies that will impede their ability to pursue breakthroughs.[291] This is where the complementary actions of other innovation agents such as employees-intrapreneurs become vital, as described in the next section.

B. Employees-Intrapreneurs

In the last few decades, entrepreneurs acting as employees inside giant conglomerates became more prominent in the innovation process.[292] Large conglomerates began to realize that innovation could yield supra-competitive profits.[293] As a result,

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288. *See* Clark Gilbert & Joseph L. Bower, *Disruptive Change: When Trying Harder is Part of the Problem*, HARV. BUS. REV., https://hbr.org/2002/05/disruptive-change-when-trying-harder-is-part-of-the-problem (last visited Feb. 13, 2019) (noting that Kodak management's failure to recognize opportunities in the digital market opened the door for industry outsiders like HP, Canon, and Sony to control the evolution of the digital camera and digital storage market) (on file with the Washington and Lee Law Review).

289. *See* Mike Spector & Dana Mattioli, *Kodak Teeters on the Brink*, WALL ST. J. (Jan. 5, 2012), https://www.wsj.com/articles/SB10001424052970203471004577140841495542810 (last visited Feb. 13, 2019) (reviewing Kodak's attempt to catch up in the filmless camera industry) (on file with the Washington and Lee Law Review).

290. *See* Eyal-Cohen, *supra* note 249, at 872–80 (discussing the economies of scale, scope and age).

291. *See id*. at 880.

292. *See infra* notes 294–296 (listing examples of giant corporations encouraging employees to be innovative).

293. *See infra* notes 294–296.

companies like Apple,[294] IBM,[295] and Google[296] began encouraging employees to pursue individual projects of their choice.[297] These conglomerates instigated opportunities for their workers to think like entrepreneurs and develop their ideas via special processes.[298] In an interview with *Newsweek* in 1985, Steve Jobs noted the following: "The Macintosh team was what is commonly known now as intrapreneurship—only a few years before the term was coined—a group of people going in essence back to the garage, but in a large company."[299]

Business history is filled with stories about employees that successfully transformed their firms through innovations.[300] As

294. *See* Jessica E. Lessin, *Apple Gives in to Employee Perks*, WALL ST. J. (Nov. 12, 2012), https://www.wsj.com/articles/SB10001424127887324073504578115071154910456 (last visited Feb. 13, 2019) (describing Apple's Blue Sky Program which allows select employees to spend a few weeks on personal projects) (on file with the Washington and Lee Law Review).

295. *See Think Friday: Taking the Time to be Innovative*, IBM.COM: BLOGS (Aug. 10, 2012) https://www.ibm.com/developerworks/community/blogs/nfrsblog/entry/think_friday_taking_the_time_to_be_innovative4?lang=en (last visited Feb. 13, 2019) (explaining IBM's "Think Friday" method which gives employees the freedom to spend time every week engaging in personal projects) (on file with the Washington and Lee Law Review).

296. *See* Andrea Huspeni, *Google's 20 Percent Rule Actually Helps Employees Fight Back Against Unreasonable Managers*, ENTREPRENEUR (June 7, 2017), https://www.entrepreneur.com/article/295372 (last visited Feb. 13, 2019) (detailing Google's "20% Rule" that allows employees to spend 20% of their work week on personal projects) (on file with the Washington and Lee Law Review).

297. *See supra* notes 294–296 (listing examples of corporations who encourage employees to pursue personal projects).

298. *See* Huspeni, *supra* note 296 ("Let your employees pursue wild ideas that may raise your eyebrows.").

299. Gerald C. Lubenow, *Jobs Talks About His Rise and Fall*, NEWSWEEK MAGAZINE, https://www.newsweek.com/jobs-talks-about-his-rise-and-fall-207016 (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review); *see* Gautam Ahuja & Curba Morris Lampert, *Entrepreneurship in the Large Corporation: A Longitudinal Study of How Established Firms Create Breakthrough Inventions*, 22 STRAT. MANAG. J. 521, 522 (2001) (modeling breakthrough inventions in established firms).

300. *See* Jake Swearingen, *Great Intrapreneurs in Business History*, CBS NEWS, https://www.cbsnews.com/news/great-intrapreneurs-in-business-history/ (June 17, 2008) (last visited Feb. 13, 2019) (listing examples of great intrapreneurs) (on file with the Washington and Lee Law Review).

mentioned above, Sony's decision to support the personal project of one of its in-house engineers ultimately helped revolutionize the gaming industry.[301] Sony intrapreneur Ken Kutaragi was working as a Sony sound labs employee when he helped Sony develop its own gaming system known as the PlayStation.[302] In 1994, Kutaragi began working with Nintendo to develop a CD-ROM-based Nintendo machine to improve video game quality.[303] Upon learning of his collaboration with Sony's business competitor, Sony executives sought to fire Kutaragi.[304] However, then-CEO Norio Ohga realized the value of this innovation and encouraged Kutaragi's efforts.[305] Sony continued to develop this gaming endeavor with Nintendo.[306] Nintendo ultimately passed on Kutaragi's CD-ROM based gaming system, which Sony later used to develop the PlayStation.[307] Kutaragi is now hailed as "the Father of the PlayStation," and has since founded Sony Computer Entertainment, one of Sony's most profitable divisions to date and invented the highest selling gaming system of all time, the PlayStation 2.[308]

Similarly, Texas Instruments researcher Larry Hornbeck's prominence is highlighted by his receipt of an Emmy for Outstanding Achievement in Engineering and Development.[309] While employed at Texas Instruments, Hornbeck developed the Digital Micromirror Device (DMD) in 1987.[310] The company

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301. *See id*. (explaining how Sony created the Playstation).

302. *See id*. (stating that the then CEO realized Kutaragi's innovation and encouraged him to pursue it).

303. *See id*. (explaining how intrapreneurship created the Playstation).

304. *See id*.

305. *See id*. ("Norio Ohga realized the value of his innovation and encouraged Kutaragi's efforts.").

306. *See id*. (stating that Kutaragi had Sony's blessing to work with Nintendo).

307. *See id*. ("Kutaragi helped Sony develop its own gaming system . . . .").

308. *See* Daniel Van Boom, *Kaz Hirai Steps Down as Sony CEO, Moves to Chairman Role*, CNET (Feb. 1, 2018), https://www.cnet.com/news/kaz-hirai-sony-step-down-chairman-ceo-playstation/ (last visited Feb. 13, 2019) (describing Sony's focus on gaming and phones under Hirai's leadership) (on file with the Washington and Lee Law Review).

309. *See* Ankit Kumar & Er. Poonam, *Micromirror*, 5 INT'L J. TECH. RES. 1, 2 (2016) (surveying innovations and achievements in this field).

310. *See* TEXAS INSTRUMENTS INC., THE DIGITAL MICROMIRROR DEVICE, A HISTORIC MECHANICAL ENGINEERING LANDMARK 1–8 (2008) (explaining the history

initially used this technology to print out airline tickets, but then Hornbeck realized that DMD technology could greatly shrink the size and cost of a digital projector. Accordingly, Texas Instruments executives launched an internal venture called the "Digital Imaging Venture Project" and named Hornbeck the program leader.[311] This innovative discovery ultimately created digital projectors weighing less than five pounds, which "revolutionized the movie theater business and allowed Texas Instruments to compete in the HDTV market."[312]

The intrapreneurial conglomerate structure presents a unique set of opportunities for employees-intrapreneurs.[313] The benefits of economies of scale, scope, and age of large, complex organizations provide prospects for employees-intrapreneurs to learn and develop their skills.[314] They may tap into their firms' pool of unused resources.[315] It is part of the inherent internal impulse of intrapreneurs for growth.[316] For example, a study conducted by Professor Hamberg found that large companies had substantial research and development advantages.[317] First, they have greater diversification and marketing that increases the likelihood that

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of the digital micromirror device); *Digital Micromirror Device*, ASME, https://www.asme.org/about-asme/who-we-are/engineering-history/landmarks/243-digital-micromirror-device (last visited Feb. 13, 2019) (same) (on file with the Washington and Lee Law Review).

311. TEXAS INSTRUMENTS INC., *supra* note 310.

312. *Id*.

313. *See, e.g.*, Ibrahim, *supra* note 35, at 1759–60 (2016) (recognizing the attractiveness of a well-resourced company holds for an employee seeking to innovate, but unwilling to bear the financial burden and unpredictability of traditional entrepreneurship).

314. *See id*. at 1744–45 (stating that large corporations have more resources than start-ups).

315. *See* EDITH PENROSE, THE THEORY OF THE GROWTH OF THE FIRM 78 (1959) (arguing that intrapreneuers are able to get the most out of a corporation's resources).

316. *See id*. ("[W]e can fairly conclude that he believes there are productive services inherent in that resource about which as yet he knows little or nothing about.").

317. *See* DANIEL HAMBERG, R & D: ESSAYS ON THE ECONOMICS OF RESEARCH AND DEVELOPMENT 47 (1966) ("It seems fairly evident that size of firm is a very important determinant . . . .").

the firm can exploit new discoveries.[318] Second, these firms have long-term resources that allow them to undertake long-range projects.[319] Lastly, they have superior laboratories, research teams, and access to substantial resources.[320]

Similarly, Israel Kirzner has described the corporate form of business organization as an "ingenious, unplanned device that eases the access of entrepreneurial talent to sources of large-scale financing."[321] He portrayed intrapreneurs as those that possess discretionary freedom of action which enables them to act as entrepreneurs and implement their ideas without themselves becoming owners.[322] As part of his theory of "alertness" to opportunities as the foundation for all entrepreneurial activity, he emphasized the importance of alertness both internal as well as external to the organization.[323]

Indeed, recent studies have also found that innovation can occur through teams of entrepreneurs.[324] Moreover, some surveys have gone so far as to indicate that established firms that encourage intrapreneurship are more successful at pursuing

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318. *See id.* at 37–38 ("A large firm is also typically a diversified one . . . .").

319 *See id.* at 37 (arguing that large corporations have more funds to contribute to research and development projects).

320 *See id.* at 39 (arguing that it is profitable for large corporations to attempt innovation because its few winners will be able to pay out against the many losers).

321. ISRAEL M. KIRZNER, PERCEPTION, OPPORTUNITY, AND PROFIT 104 (1979).

322. *Id.* at 105.

323. *See* ISRAEL M. KIRZNER, DISCOVERY AND THE CAPITALIST PROCESS 85 (1985)

> *Alertness* is a concept sufficiently elastic to cover not only the perception of existing arbitrage opportunities, but also the perception of intertemporal speculative opportunities that can be definitively realized only after the lapse of time, and even also the perception of intertemporal opportunities that call for creative and imaginative innovation.

324. *See* MARTIN RUEF, THE ENTREPRENEURIAL GROUP: SOCIAL IDENTITIES, RELATIONS, AND COLLECTIVE ACTION 168 (2010) (finding entrepreneurship in group to be more efficient); Hans K. Hvide, *The Quality of Entrepreneurs*, 119 ECON. J. 1010, 1010 (2009) (demonstrating that groups in established firms produce entrepreneurs of higher quality than smaller firms); *see also* ROSABETH MOSS KANTER, THE CHANGE MASTERS: INNOVATION AND ENTREPRENEURSHIP IN AMERICA 209–10 (1983) (portraying "corporate entrepreneurs" as "the people who test the limits and create new possibilities for organizational action by pushing and directing the innovation process").

innovative projects than start-ups.[325] Accordingly, the firm's age in and of itself no longer can stand as the sole characteristic in the model of successful innovation.[326] By pioneering innovations within the existing organizational structure, employees-intrapreneurs contribute to the firm's entrepreneurial viability while strengthening their own creative spirit.[327] Thus, the phenomenon of intrapreneurship has positive effects on employees as well as organizational growth and profitability.[328]

What roles do those employees-intrapreneurs employ in their firms? Depending on the type of firm, industry, and venture, intrapreneurship can be observed as a bottom up or top down occurrence.[329] Creating innovations often requires creative insights and forecasting market demands.[330] It may also necessitate bridging technical gaps with scientific knowledge and technical lab skills.[331] Those who come from the lower levels of the

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325. *See* Timothy Dunne et al., *Patterns of Entry and Exit in U.S. Manufacturing Industries*, 19 RAND J. ECON. 495, 513 (1988) (stating an empirical study on entry and exit rates for both start-ups and diversifying entrants); P.A. Geroski, *What Do We Know About Entry?*, 13 INT'L J. INDUS. ORG. 421, 424–25 (1995) ("De novo entry is more common but less successful than entry by diversification."). *But see* Avishalom Tor, *The Fable of Entry: Bounded Rationality, Market Discipline, and Legal Policy*, 101 MICH. L. REV. 482, 485 (2002) (criticizing those studies for being limited by not including all diversifying firms, including those who enter by changing their product mix in an existing facility).

326. *See* Diego B. Avanzini, *Designing Composite Entrepreneurship Indicators*, *in* ENTREPRENEURSHIP AND ECONOMIC DEVELOPMENT 37, 39–40 (Wim Naudé ed., 2011) (arguing that existing indicators of entrepreneurial activity (amongst them the Kaufman new firm index) that have been considered good proxies are not adequate to entrepreneurial development).

327. *See* Ibrahim, *supra* note 35, at 1744 (listing the benefits of employee intrapreneurship).

328. *See* Bostjan B. Antoncic & Robert D. Hisrich, *Intrapreneurship: Construct Refinement and Cross-Cultural Validation,* 16 J. BUS. VENTURING 495, 496 (2001) ("[T]he results of this study support the notion that intrapreneurship is an important predictor of firms growth in terms of absolute growth . . . .").

329. *See* Niels Bosma, Erik Stam & Sander Wennekers, *Entrepreneurial Employee Activity: A Large Scale International Study*, UTRECHT UNIVERSITY SCHOOL OF ECONOMICS DISCUSSION PAPER SERIES 12, at 3 (2012) (distinguishing between top down and bottom up processes).

330. *See id*. (defining "innovative work behavior").

331. *See* ROBERT A. BURGELMAN AND LEONARD R. SAYLES, INSIDE CORPORATE

organization are likely to possess more technological knowledge and expertise.[332] Those who come from the management level may serve as visionaries and develop efficient business strategies to implement the innovation.[333]

Pinchot and Pellman claim that while employees-intrapreneurs must be leaders, they differ considerably from ordinary managers.[334] They seek innovative opportunities, engage in teamwork, and make rapid decisions under uncertainty.[335] Intrapreneurs act like entrepreneurs, only with better access to research and funding than entrepreneurial agents normally have.[336] They seek profitable opportunities and learn from past failures without having to participate in the endless race for funding, or being exposed to the risks of financial accountability typically associated with entrepreneurial failure.[337] Accordingly, they possess similar characteristics to entrepreneurs such as creativity, risk-taking, leadership, and self-motivation.[338]

Other scholars claim that managers can also assume the role of intrapreneurs within certain organizations.[339] They may help the internal venture navigate the company's social-political environment.[340] While intrapreneurs-managers may have other

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INNOVATION: STRATEGY, STRUCTURE, AND MANAGERIAL SKILLS 5 (1986) (observing internal entrepreneurship from the bottom up).

332. *See* Modesto A. Maidique, *Entrepreneurs, Champions, and Technological Innovation*, SLOAN MGMT. REV. 59, 64 (1980) (noting intrapreneurs can come from lower levels as well as middle and upper levels of the firm).

333. *See id*. at 66 (stating that the CEO of Kloss was in charge of overseeing "the concept of the product").

334. GIFFORD PINCHOT & RON PELLMAN, INTRAPRENEURING IN ACTION: A HANDBOOK FOR BUSINESS INNOVATION 87 (1999) (distinguishing intrapreneurs from middle managers).

335. *See id*. at 81–86 (discussing the general qualities of successful intrapreneurs).

336. *See* Michael Livingston, *Risky Business: Economics, Culture and the Taxation of High-Risk Activities,* 48 TAX L. REV. 163, 214 (1993) (discussing the factors contributing to intrapreneur's access to greater resources).

337. *See* Swearingen, *supra* note 300 (discussing how intrapreneur Larry Hornbeck used Texas Instrument's multi-million-dollar contract award granted to them by the Defense Advanced Research Projects Agency to invent DMD technology).

338. *See id*. (providing examples of successful intrapreneurs).

339. *See* Day, *supra* note 57, at 148 (describing intrapreneurs as "champions" of innovation in the organizations).

340. *See* S. Venkataraman, Ian C. MacMillan & Rita G. McGrath, *Progress in*

responsibilities that keep them away from monitoring all key functions of the discovery, they often advocate for its continuous expansion, resources, and legitimacy.[341] Intrapreneurial ventures may be costly and high-profile, embodying substantial risks for the organization and significant threats to the status quo.[342] The hierarchical power of managers-intrapreneurs and their organizational knowledge enables them to foster highly innovative (and costly) ventures.[343]

Intrapreneurs also have the ability to assume a dual role in the innovation process.[344] They may advance existing discoveries through the commercialization process in their firm. For instance, the Post-it note was invented by a 3M scientist via the company's bootlegging program.[345] The program permitted 3M employees to spend some of their time at work developing innovative ideas.[346] Intrapreneurs may also seek new discoveries independently outside of their firm.[347] As mentioned above, Sony employee Ken Kutaragi embarked independently on a joint venture to create new CD-ROM gaming technology with Sony's competitor, Nintendo.[348]

Research on Corporate Venturing, *in* THE STATE OF THE ART OF ENTREPRENEURSHIP 487, 503 (Donald L. Sexton & John D. Kasarda eds., 1992) ("[A] new venture idea requires one or more powerful agents within the organization who will exercise the required social and political effort . . . to galvanize support for a business concept.").

341. *See* Day, *supra* note 57, at 153 (discussing top management as dual-role intrapreneurs).

342. *See* Tushman & Romanelli, *supra* note 282, at 179 (describing how shifts in strategy, or reorientations, can fundamentally change an organization's character).

343. *See* Day, *supra* note 57, at 153 (noting that top management "may provide the right mix of knowledge and information, as well as hierarchical power, to foster certain kinds of highly innovative ventures").

344. *See* Swearingen, *supra* note 300 (discussing intrapreneurs who worked to promote ventures within their companies).

345. *Id.* ("The Post-it, now as indispensable to the typical office worker as a chair and desk, might never have made it to market without 3M's longstanding 'bootlegging' policy.").

346. *See id.* ("The company's program allows employees to spend up to 15 percent of their time at work developing their ideas.").

347. *See id.* (discussing intrapreneurs who innovated outside their companies).

348. *See id.* ("With Sony's blessing, Kutaragi worked with Nintendo to develop

Intrapreneurs develop a strong entrepreneurial identity and sense of responsibility when they are empowered to claim ownership of their tasks.[349] Their motivation to innovate may be maintained through job design, formal ownership structures, or monetary incentives.[350] They identify gaps between intra-firm capabilities and market discoveries and import or create new products or services.[351]

A study that assessed successful intrapreneurial environments emphasized five distinct factors: management support, employee-work discretion, organizational boundaries, rewards and reinforcement, and time availability.[352] Google, for instance, utilizes an "innovation time off" program, which allows employees to spend part of their workday developing their own intrapreneurial projects.[353] Notable programs such as Gmail and Google News were developed through Google employees' efforts within the innovation time off program.[354] Microsoft employs innovation initiatives known as "The Garage," which "supports and encourages problem solving in new and innovative ways."[355] The program provides space, personal incentives, and

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a CD-ROM-based Nintendo.").

349. *See* LOBEL, *supra* note 28, at 173–95 (discussing how self-identification and "fitness" foster work environments conducive to creativity and innovation and noting individuals must view their human capital as part of their identity to maximize their innovative capacity).

350. *See* PINCHOT & PELLMAN, *supra* note 334, at 12 (discussing Fleischmann's Company's strategic innovation program as part of the company's job design); *Id.* at 26–27 (explaining that some companies set up seed money funds to promote innovation).

351. *See* Swearingen, *supra* note 300 (discussing intrapreneur Larry Hornbeck's development of the Digital Micromirror Device which reinvented modern Hollywood cinema projects).

352. *See* Jeffrey S. Hornsby, Donald F. Kuratko & Shaker A. Zahra, *Middle Managers' Perception of the Internal Environment for Corporate Entrepreneurship: Assessing a Measurement Scale,* 17 J. BUS. VENTURING 253, 254 (2002) (discussing the factors determined by the Corporate Entrepreneurship Assessment Instrument (CEAI)).

353. *See* Ibrahim, *supra* note 35, at 1754 (explaining Google's "innovation time off" program).

354. *See id.* at 1754–55 ("Notably, half of the programs Google launched in the latter half of 2005 were developed through this program, including Gmail and Google News.").

355. *See What is The Garage?*, MICROSOFT, https://www.microsoft.com/en-us/garage/about/ (last visited Feb. 13, 2019) (on file with the Washington and Lee

project development tools to stimulate innovation.[356] It allows Microsoft employees to use Microsoft products to develop new projects with guidance from technical and market advisors.[357] The program also delivers a unique release process which helps employees distribute their experiments quickly.[358] Both of these programs are indicative of how large companies enable employee-work discretion and managerial support to increase innovative discoveries within the firm.[359]

Lastly, research also emphasizes the importance of providing intrapreneurs with autonomy.[360] When provided with independence, intrapreneurs play a vital role in changing their competitive environment.[361] Yet, when management's interest is not matched with that of intrapreneurs, the latter seek opportunities outside of the organization.[362] Why particular individuals choose to advance opportunities in a self-directed way, rather than as part of an organization, may also be idiosyncratic. Whether working as an employee or embarking on an independent road, society ultimately benefits from intrapreneurial knowledge.[363]

Law Review).

356. *See id*. (noting that "The Garage" provides "spaces for hacking and making," tools to allow innovators to test experiments, and allows innovators to gain valuable insights "regardless of results").

357. *See id*. (explaining that "The Garage" provides teams across the company with the ability to get expert advice on their innovations).

358. *See id*. ("Project teams get . . . a lightweight release process to help teams get their experiments out quickly.").

359. *See supra* notes 353–358 and accompanying text.

360. *See* KANTER, *supra* note 324, at 171 (noting that individuals at two high-innovation companies "perceived a great deal of 'running room' (freedom) in the course of completing their accomplishments").

361. *See id*. at 241 ("Corporate entrepreneurs . . . still get their projects done by crafting coalitions and building teams of devoted employees who feel a heightened sense of joint involvement and contribution to decisions.").

362. *See supra* note 348 and accompanying text.

363. *See* KANTER, *supra* note 324, at 19 (noting the "clear and pressing need for more innovation" due to "social and economic changes of unprecedented magnitude and variety").

IV. The Positive Spillovers of Intrapreneurship

A. The Greenhouse Effect

How do intrapreneurial firms contribute to this type of knowledge spillover? Simply put, they serve as "human capital greenhouses."[364] Aside from job training, they provide their employees-intrapreneurs with first-hand experience of the various stages of developing innovations without personally enduring the financial and reputational consequences of entrepreneurial failure.[365] Google delivers training programs and opportunities for development in various ways, such as discussions, simulations, and on-the-job training.[366] Its People Operations team (known elsewhere as HR) lives by the mantra "find them, grow them, keep them," and is dedicated to talent development in a distinct and inclusive culture.[367] These employees can later share that experience with other market players or utilize it in their own ventures.[368]

Organizations committed to innovation may groom employees to develop entrepreneurial skills.[369] Through management education as well as a process of discovery that enables team members to deploy new skills, they can improve employees' expertise and motivate them to become corporate visionaries.[370] These corporate entrepreneurial development programs may be

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364. *See, e.g.*, *id.* at 23 (explaining that high-innovation organizations are those "that make it possible to experiment, to create, to develop, to test").

365. *See* Ibrahim, *supra* note 35, at 1750 (contrasting intrapreneurship, where an employee stays in-house to pursue an idea, with entrepreneurship, where an innovator assumes all risks in terms of capital and reputation).

366. *See* Laura He, *Google's Secret to Innovation: Empowering Its Employees*, FORBES (Mar. 29, 2013, 5:29 PM), https://www.forbes.com/sites/laurahe/2013/03/29/googles-secrets-of-innovation-empowering-its-employees/#1e1bebcc57e7 (last visited Feb. 13, 2019) (listing the company's various channels to promote discussion and innovation) (on file with the Washington and Lee Law Review).

367. *Google Careers*, GOOGLE, https://www.google.com/intl/es_ALL/about/careers/fields-of-work/people/ (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review).

368. *See* He, *supra* note 366 (discussing Google's management practices that inspire innovation).

369. *See* PINCHOT & PELLMAN, *supra* note 334, at 36–42 (discussing the use of training programs to develop employees' intrapreneurial skills).

370. *See id.*

formal or informal.[371] For instance, through Adobe's KickStart program, employees are offered two-day innovation workshops along with a $1,000 gift card to develop an idea or prototype.[372] Studies show that organizations can train managers to act like entrepreneurs and that these actions can result in significant new value creation.[373]

Cultivating development practices can elevate entrepreneurial conduct in various circumstances and support employees' involvement.[374] The innovative environment requires adjustment to changing market demands and staying informed

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371. *See* Neal E. Thornberry, *Corporate Entrepreneurship: Teaching Managers to be Entrepreneurs*, 22 J. MGMT. DEV. 329, 330 (2003) (listing four types of corporate entrepreneurship: corporate venturing, intrapreneurship, organizational transformation, and industry rule-breaking).

372. Jacob Morgan, *The Innovation Game: Adobe's New Strides to Keep Employees Engaged*, FORBES (Feb. 25, 2015, 12:55 AM), https://www.forbes.com/sites/jacobmorgan/2015/02/25/the-innovation-game/#36d8630a41e6 (last visited Feb. 13, 2019) (describing Adobe's Kickstart innovation program) (on file with the Washington and Lee Law Review).

373. *See* Thornberry, *supra* note 371, at 331 (explaining that a "company's service delivery was given both a speed and cost advantage over their competitors" because of middle manager's innovation); *see also* KRISTIINA ERKKILA, ENTREPRENEURIAL EDUCATION: MAPPING THE DEBATES IN THE UNITED KINGDOM AND FINLAND 5 (2000) (noting that entrepreneurship education is focused on small business and enterprise education is directed more toward the development of enterprising behavior); Lan Li, Eliza Ching-Yick Tse & Jing-Ling Zhao, *An Empirical Study of Corporate Entrepreneurship in Hospitality Companies*, 10 INT'L. J. HOSPITALITY & TOURISM ADMIN. 213, 225 (2009) (evaluating the impact of organizational structure to positively or negatively impact innovation within the firm); Ali Reza Ma'atoofi & Kayhan Tajeddini, *The Effect of Entrepreneurship Orientation on Learning Orientation and Innovation: A Study of Small-Sized Business Firms in Iran*, 1 INT'L. J. TRADE, ECON. & FIN. 254, 258 (2010) (finding a significant positive relationship between entrepreneurship orientation and increased innovation in eighty-two small firms).

374. *See* James C. Hayton, *Promoting Corporate Entrepreneurship Through Human Resource Management Practices: A Review of Empirical Research*, 15 HUM. RESOURCE MGMT. REV. 21, 33–38 (2005) (discussing the need for organizational learning and collaboration to promote entrepreneurial activity of employees); Bård Kuvaas & Anders Dysvik, *Exploring Alternative Relationships Between Perceived Investment in Employee Development, Perceived Supervisor Support and Employee Outcomes*, 20 HUM. RESOURCES MGMT. J. 138, 144–49 (2010) (discussing the impact of direct supervisor support and relationships in fostering and improving work quality, retention, and development).

about the newest technologies.[375] Accordingly, many intrapreneurial firms invest continuously in professional development, as well as individualized coaching and learning opportunities.[376] SquareSpace offers such individualized coaching through "All Hands Meetings" and "CEO Office Hours" where employees can get access to advice and guidance from top management.[377]

Scholars note that this type of investment in intrapreneurs empowers them to react creatively to new challenges, adjust to dynamic situations, and manage uncertain conditions.[378] Moreover, it is an effective venue for employees to appreciate the value of cooperation and cross-functional perspectives.[379] Lastly, intrapreneurs gain political skills and receive first-hand knowledge on approaches to acquire funding and ways to avoid early exposure of new ideas and discoveries.[380] Entrepreneurial networks are built through the development of ideas and ventures.[381] Investors in entrepreneurial ventures are often intrapreneurs themselves, who acquired familiarity with the

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375. *See* Inder Sidhu, *How Amazon Maintains Its Edge*, FORBES (Sept. 13, 2010, 4:20 PM), https://www.forbes.com/2010/09/13/amazon-innovation-change-management-leadership-managing-human-capital-10-disruption.html#2d6a97584e6f (last visited Feb. 13, 2019) (discussing Amazon's ability to develop new technology and apply it to different marketplaces and applications) (on file with the Washington and Lee Law Review).

376. *See infra* note 377 and accompanying text.

377. *See Careers*, SQUARESPACE, https://www.squarespace.com/about/careers (last visited Feb. 13, 2019) ("Our monthly All Hands meetings, email newsletters, and CEO Office Hours are just a few of the programs we run to bring our three offices together and share key aspects of the business across the entire organization.") (on file with the Washington and Lee Law Review).

378. *See* MICHAEL H. MORRIS, DONALD F. KURATKO & JEFFREY G. COVIN, CORPORATE ENTREPRENEURSHIP & INNOVATION 190 (2010) ("This type of training approach enables employees to respond in unique ways to new challenges, adapt to dynamic environmental conditions, and feel comfortable with ambiguity.").

379. *See id*. (noting that training programs can teach employees to value collaboration and shared achievements).

380. *See id*. ("[T]here is some value in teaching political skills to prospective entrepreneurs, including ways to obtain sponsors, build resource networks, and avoid early publicity of new concepts and ventures.").

381. *See* THOMAS HELLMANN & VEIKKO THIELE, FOSTERING ENTREPRENEURSHIP: PROMOTING FOUNDING OR FUNDING? 2 (2017), http://eureka.sbs.ox.ac.uk/6297/1/2017-04.pdf ("Successful entrepreneurs accumulate both the expertise and the wealth to then fund the next generation of entrepreneurs.").

unique process of innovative ventures.[382] Serial intrapreneurs frequently use their networking abilities to obtain funding more easily.[383] For example, Facebook was initially funded by Peter Thiel, the co-founder of PayPal and a former partner at the accelerator Y Combinator.[384] Andy Bechtolsheim, chief hardware designer and co-founder of Sun Microsystems and consultant to Xerox, was one of the initial investors in Google.[385]

Lastly, intrapreneurial firms may also instill in their employees ways to remain alert to opportunities.[386] Researching new market demands and seeking technological gaps are some techniques utilized in such organizations to remain attentive to new possibilities.[387] Studies note some effective training may include development of entrepreneurial mindset by emphasizing acceptance of change, willingness to take risks and assume responsibility, and collaborative attitudes and practices.[388]

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382. *See id*. ("In practice, the first check of successful start-ups often comes from angel investors who were successful entrepreneurs before: think of Andy Bechtolsheim, co-founder of Sun Microsytems, who wrote the first check for Google, or Peter Thiel, co-founder of PayPal, who wrote the first check for Facebook.").

383. *See infra* notes 309–310 and accompanying text.

384. *See* Tracey Lien, *Peter Thiel's Resume Includes PayPal, Facebook and Supporting Trump. And He's Coming to L.A.*, L.A. TIMES (Feb. 15, 2018, 11:30 AM), http://www.latimes.com/business/technology/la-fi-tn-who-is-peter-thiel-20180215-story.html (last visited Feb. 13, 2019) ("[Thiel's] first major foray into technology came in 1999 when he co-founded PayPal with Elon Musk, Max Levchin, Luke Nosek and Ken Howery.") (on file with the Washington and Lee Law Review); David Z. Morris, *Y Combinator Has Quietly Cut Ties with Peter Thiel*, FORTUNE (Nov. 19, 2017), http://fortune.com/2017/11/19/y-combinator-peter-thiel/ (last visited Feb. 13, 2019) (discussing Theil's departure from being part-time partner at Y Combinator) (on file with the Washington and Lee Law Review).

385. *See* John Markoff, *Even Sun Microsystems Had Its Roots at Xerox PARC*, N.Y. TIMES BLOG (May 28, 2014, 7:00 AM), https://bits.blogs.nytimes.com/2014/05/28/even-sun-microsystems-had-its-roots-at-xerox-parc/ (last visited Feb. 13, 2019) (discussing Bechtolsheim's role at Sun Microsystems as well as his role at other companies) (on file with the Washington and Lee Law Review).

386. *See infra* notes 387–389 and accompanying text.

387. *See* He, *supra* note 366 (explaining that Google's training and development encourage employees to suggest new areas for development, highlight technological gaps, and develop prototypes to fill those gaps).

388. *See* MORRIS, KURATKO & COVIN, *supra* note 378, at 190 ("Training

Researchers found that this type of entrepreneurial training in intrapreneurial firms generated the highest performance and distinguished more entrepreneurial organizations from less entrepreneurial organizations.[389] As discussed next, such exit risks may be more career-related decisions, rather than compensation-driven.[390]

B. Maintaining Exit Opportunities and Knowledge Spillover

Information quickly diffuses to other market players[391] There is a sharp decline in the marginal cost of discovery once such knowledge is made publicly available.[392] Others learn about the new discovery, improve it, and apply it to other uses and industries.[393] The outcome of this knowledge spillover process is the transformation of the entrepreneurial special premium into common business profits.[394] This is the transient nature of entrepreneurial success. This process increases the

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programs should include an attitudinal component . . . where acceptance of change, a willingness to take risks and assume responsibility, and the value of collaborative innovation and shared achievements are central themes.").

389. *See id.* at 192 (finding that performance appraisal and training/development were the areas that "generated the highest numbers of practices that distinguish more entrepreneurial from less entrepreneurial organizations").

390. *Infra* Part III.B.

391. *See* Dan L. Burk, *The Role of Patent Law in Knowledge Codification*, 23 BERKELEY TECH. L.J. 1009, 1009–34 (2008) (debating the effectiveness of patents); Daniel B. Kelly, *Strategic Spillovers*, 111 COLUM. L. REV. 1641, 1680 (2011) (discussing strategic knowledge spillovers when negotiating with a strategic party that agrees to disclose certain information); Janusz Ordover, *A Patent System for Both Diffusion and Exclusion,* 5 J. ECON. PERSP. 43, 54–55 (1991) (examining the correlation between knowledge spillovers and property rights when research joint ventures are involved); Lisa Larrimore Ouellette, *Do Patents Disclose Useful Information?*, 25 HARV. J.L. & TECH. 545, 564 (2012) ("[P]atent citations do provide a statistically significant signal of knowledge 'spillover'—i.e., that patentees are learning from roughly half the patents they cite.").

392. Schumpeter, *supra* note 93, at 260 ("[E]ntrepreneurial gain may also be called a monopoly gain, since it is due to the fact that competitors only follow at a distance . . . .").

393. *See supra* notes 384–385 and accompanying text.

394. *See* Schumpeter, *supra* note 93, at 260 ("But it is this increase in asset return itself rather than the returns that constitute the entrepreneurial gain, and it is in this way that industrial fortunes are typically created.").

competitiveness of the market and interchangeability of innovative knowledge in society.[395]

Indeed, intrapreneurial firms serve as major contributors to the development of human capital as greenhouses for future entrepreneurs.[396] When these firms provide training, knowledge, experience, and capital, they create appropriate conditions for creative intrapreneurs to flourish.[397] Regardless, these employees may leave to work for a competitor or seek to pursue independent projects.[398] In those moments, intrapreneurial firms become major facilitators of knowledge spillovers.[399] By allowing intrapreneurs to exit with their innovative knowledge and seek opportunities elsewhere, intrapreneurial firms serve an important role in facilitating cross-fertilization and expansion of innovation that is beneficial to society.[400] These firms inadvertently participate in welfare-increasing diffusion of knowledge from intrapreneurial agents to entrepreneurial agents to society.[401] Indeed, Steve Jobs and Steve Wozniak worked at Atari, Inc. and Hewlett-Packard, respectively, prior to founding Apple Computers.[402]

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395. Often times, entrepreneurial failure is followed by successful entrepreneurial actions of others. *See, e.g.*, ANNA LEE SAXENIAN, REGIONAL ADVANTAGE: CULTURE AND COMPETITION IN SILICON VALLEY AND ROUTE 111, 128 (1994) (arguing that learning from failure increases the competitiveness of the region); *see also* Edward L. Glaeser, William R. Kerr & Giacomo A.M. Ponzetto, *Clusters of Entrepreneurship*, 67 J. URB. ECON. 150, 151 (2010) (claiming that entrepreneurship is higher when fixed costs are lower and when there are more independent suppliers).

396. *See supra* note 388 and accompanying text (describing the skills entrepreneurial training can help develop).

397. *See supra* note 388 and accompanying text.

398. *See infra* note 402 and accompanying text (providing examples of entrepreneurs who left their companies to pursue independent work).

399. *Supra* note 391 and accompanying text.

400. *Infra* note 403 and accompanying text.

401. *Infra* note 403 and accompanying text.

402. *See Steve Jobs Biography*, A&E TELEVISION NETWORKS (Apr. 2, 2014), https://www.biography.com/people/steve-jobs-9354805 (last updated Sept. 11, 2018) (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review); *Steve Wozniak Biography*, A&E TELEVISION NETWORKS (Apr. 2, 2015), https://www.biography.com/people/steve-wozniak-9537334 (last updated Apr. 27, 2017) (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review).

Research has long demonstrated that open markets with free labor market mobility function as conduits for facilitating the dissipation of knowledge.[403] Entrepreneurial talent turnover is a crucial part of the innovation process that leads to economic growth.[404] Employees-intrapreneurs may utilize their knowledge in new ways to develop innovations in other industries or technologies.[405] Scholars, such as Jaffe, Thompson, and Shane, have contended that innovative knowledge not only facilitates technological change but also generates opportunities for third parties.[406] Knowledge encourages "increased rates of learning and access to knowledge on a rapidly developing research frontier."[407] In the Boston biomedical industry, knowledge spillover has

403. *See, e.g.*, AUDRETSCH, KEILBACH & LEHMANM, *supra* note 66, at 5 ("[E]ntrepreneurship makes an important contribution to economic growth by providing a conduit for the spillover of knowledge that might otherwise have remained uncommercialized."); ANDRÉ VAN STEL, EMPIRICAL ANALYSIS OF ENTREPRENEURSHIP AND ECONOMIC GROWTH 1 (2006) ("The importance of entrepreneurship for achieving economic growth in contemporary economies is widely recognized, both by policy makers and economists."). *See generally*, ENTREPRENEURSHIP, INNOVATION, AND THE GROWTH MECHANISM OF THE FREE-ENTERPRISE ECONOMIES (Eytan Sheshinski et al. eds., 2007).

404. Steven Klepper reiterated these ideas in a study on knowledge spillover in Silicon Valley. *See* Steven Klepper, *Silicon Valley, A Chip off the Old Detroit Bloc*, *in* ENTREPRENEURSHIP, GROWTH, AND PUBLIC POLICY, *supra* note 44, at 79, 113 ("[R]egions need to have in place legal and economic policies to enable talented employees to leave established firms and venture out on their own.").

405. *Supra* note 404 and accompanying text.

406. *See* Adam B. Jaffe, Manuel Trajtenberg & Rebecca Henderson, *Geographic Localization of Knowledge Spillovers as Evidenced by Patent Citations*, 108 Q.J. ECON. 577, 577 (1993) ("Generally speaking, this research has shown that the productivity of firms or industries is related to their R&D spending, and also to the R&D spending of other firms or other industries."); Scott Shane, *Technological Opportunities and New Firm Creation,* 47 MGMT. SCI. 205, 219 (2001) (concluding that importance, radicalness, and patent scope determine "that a new invention will be exploited through the creation of a new firm"); Peter Thompson & Melanie Fox-Kean, *Patent Citations and The Geography of Knowledge Spillovers: A Reassessment*, 95 AM. ECON. REV. 450, 459 (2005) (finding evidence of localized knowledge spillovers at the national level).

407. *See* Jason Owen-Smith & Walter W. Powell, *Knowledge Networks as Channels and Conduits: The Effects of Spillovers in the Boston Biotechnology Community*, 15 ORG. SCI. 5, 6 (2004) (demonstrating that geographic propinquity and organizational form fundamentally alter the flow of information through a network).

allowed for increased output and innovation through strategic alliance partnerships.[408]

As the knowledge context increases, spillover effects around intrapreneurial firms stimulate an increasing number of related innovations.[409] This positive externality of intrapreneurial enterprises is beneficial to the economy.[410] Several studies found that employee turnover contributed to important innovations in geographical clusters of high technology areas such as Silicon Valley and Route 128.[411] They concluded that employee mobility is vital in information technology clusters because it facilitates the reallocation of talent and resources toward firms with superior innovations.[412]

By their nature, many creative employees-intrapreneurs aspire to begin their own independent journey.[413] The ideas of

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408. *See id*. (showing that third-party contractual linkages among physically proximate organizations represent relatively transparent channels for information transfer).

409. *Infra* note 411 and accompanying text.

410. *See, e.g.*, Ács, Audretsch & Strom, *supra* note 66, at 2 (noting that the public policy community "started looking to entrepreneurship as an engine of economic growth, employment, and a high standard of living"); AUDRETSCH, KEILBACH & LEHMANM, *supra* note 66, at 4 (stating that entrepreneurship has become important in fostering growth and creating jobs).

411. *See* LOBEL, *supra* note 28, at 40 ("In fact, high employee turnover—talent moving fluidly among businesses—is positively correlated with productivity, particularly in industries in which research and development are core activities."); SAXENIAN, *supra* note 395, at 34–35 (discussing Silicon Valley's high level of job-hopping and noting that "these high rates of mobility forced technology companies to compete intensely for experienced engineering talent"); Bruce Fallick et al., *Job-Hopping in Silicon Valley: Some Evidence Concerning the Microfoundations of a High-Technology Cluster*, 88 REV. ECON. & STAT. 472, 473 (2006) (describing the human capital extenalities that job-hopping create including reducing incentives to invest in new knowledge); Gilson, *supra* note 207, at 904–05 (explaining why innovators are likely more incentivized to innovate in a start-up than within a larger company).

412. *See* Fallick et al., *supra* note 411, at 481 ("[F]requent job-hopping facilitates the rapid reallocation of resources toward firms with the best innovations.").

413. *See* Licht, *supra* note at 119, at 823 (noting that entrepreneurs tend to act independently and be self-confident); Thornberry, *supra* note 371, at 330 (warning companies that engage in entrepreneurial training programs from the pitfalls of newly trained corporate entrepreneurs leaving the firm).

autonomy and starting fresh are the main characteristics of the innovative development process and affects those dealing with it day-to-day.[414] From the intrapreneur's perspective, often working for a few years inside an intrapreneurial firm is necessary in order to learn to deal with competitive pressures, protect themselves from liability, enter strategic groups and industries, or just to improve networking and connections.[415] Thereafter, intrapreneurs may take knowledge they were exposed to during their employment (that was ignored or would otherwise remain uncommercialized) to launch their own ventures.[416] Consequently, they may leave secure positions and wages to pursue their interests autonomously and take with them their valuable knowledge and experience.[417] Take Anastasia Leng, who had a secure position at Google but left to pursue her own entrepreneurial venture.[418] Leng embarked on an independent initiative, founding Makeably—a market place for custom designed goods—which she said has made her feel more accomplished and victorious than ever before.[419] Jasper Vallance also left a job at Google as a retail industry manager to pursue his own online consulting business.[420] He felt the company was

414. *See* Licht, *supra* note at 119, at 823–25 (noting that entrepreneurs tend to prefer autonomy and are willing to deal with uncertainty).

415. *See* Richard A. Peterson & David G. Berger, *Entrepreneurship in Organizations: Evidence from the Popular Music Industry*, 16 ADMIN. SCI. Q. 97, 97 (1971) (providing that corporate entrepreneurship is usual means for coping with competitive threats).

416. *See* Rajshree Agarwal et al., *The Process of Creative Construction: Knowledge Spillovers, Entrepreneurship, and Economic Growth*, 1 STRATEGIC ENTREPRENEURSHIP J. 263, 264 (2007) (discussing how entrepreneurial ideas and opportunities are generated and how knowledge spillovers create a process of creative construction).

417. *See infra* note 418 and accompanying text.

418. *See* Megan Rose Dickey, *Google Begged This Woman to Stay, But She Left to Start Her Own Company,* BUS. INSIDER (May 26, 2013, 8:01 AM) https://www.businessinsider.com/anastasia-lengs-startup-makeably-2013-5 (last visited Feb. 13, 2019) (discussing Leng's departure from Google) (on file with the Washington and Lee Law Review).

419. *See id*. ("And yet, I've never felt more accomplished because the mistakes you make are yours and the victories you have are yours, too.").

420. *See Declaration of Independence: 8 Entrepreneurs Who Left Big Corporate Jobs for Startups*, OPENVIEW (July 4, 2014), https://labs.openviewpartners.com/left-corporate-jobs-for-startups/#.W8fLB2hKg2w (last visited Feb. 13, 2019) (explaining Vallance's

becoming "too corporate" for him and wanted to pursue opportunities independently despite the financial toll of leaving a secured job and starting anew.[421]

Intrapreneurship, therefore, is important in providing a hub for intrapreneurs to commercialize knowledge and ideas that might otherwise remain uncommercialized by the firm.[422] It contributes to economic growth by improving and refining existing breakthroughs and delivering them to the market through other innovation agents—independent entrepreneurs.[423] Consequently, intrapreneurs are instrumental in creating the next generation of entrepreneurs that will establish new businesses and create new jobs, intensify competition, and increase economic productivity.[424]

Employees-intrapreneurs are constantly alert to other opportunities.[425] Accordingly, autonomous strategic behavior is very likely to manifest itself.[426] Employees-intrapreneurs with entrepreneurial aspirations may leave regardless of carrots

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decision to leave Google) (on file with the Washington and Lee Law Review).

421. *See id*. (explaining that Vallance left Google's Sydney office because the "operation had become a bit too corporate for him").

422. *See* Ács, Audretsch & Strom, *supra* note 66, at 8 (advancing the argument that many of today's most successful companies were created by future entrepreneurs whose ideas were rejected by the "decision-making bureaucracy" of larger corporations). Examples include "Apple Computer, SAP, Xerox, Microsoft . . . and Intel." *Id*.; *see also* CHRISTENSEN, *supra* note 68, at 85–86 (discussing the purchase of new 1.8 inch disk drive technology from "little startup compan[ies]" that were seemingly unavailable from larger disk drive companies with well-trained decision-makers and CEOs); *supra* note 404 and accompanying text.

423. *See supra* note 403 and accompanying text.

424. *See* CHRISTENSEN, *supra* note 68, at 87–88 (discussing the decline of the U.S. steel industry due to major companies' failure to invest in and employ "minimill" steel-making technology). This technology is more output-efficient and cost-competitive, producing steel of equivalent quality at a 15% lower cost than the average integrated mill. *Id*. at 88. Minimills "virtually dominate" the North American markets and are predicted to account for half of all steel production by the turn of the century. *Id*.

425. *See* KIRZNER, *supra* note 321, at 7 (discussing the "central role" of entrepreneurial alertness to the discovery of changed market conditions and overlooked possibilities).

426. *Supra* notes 418–21 and accompanying text.

dangled in front of them or bones thrown their way.[427] They take their innovative knowledge, training, and sometimes trade secrets with them to their next employer or independent endeavor.[428] While knowledge spillover is essential to the development of innovation in a society, it can be detrimental to intrapreneurial firms.[429] Their investments in human capital remain transient, susceptible to immediate harm, and dependent on factors beyond the control of the firm.[430] As a result, intrapreneurial firms often adopt lock-in strategies, as the next Part reveals.[431]

V. The Negative Spillovers of Intrapreneurship

Prior to founding Walmart, Sam Walton worked as a managerial trainee at J.C. Penney Company.[432] He was often frustrated by the paperwork and other corporate constraints.[433] Walton decided to leave J.C. Penney and take lessons in sales.[434] He took a risk by developing a new customer-focused, low-pricing model which developed into today's retail giant.[435] Similarly, Steve Jobs worked at Atari, Inc. prior to leaving and founding Apple

427. *Supra* notes 418–421 and accompanying text.

428. *Supra* notes 418–421 and accompanying text; *see also* Acs, Audretsch & Strom, *supra* note 66, at 8 (discussing the success of Google and Genetech as a result of entrepreneurs taking their knowledge developed at universities and starting new firms).

429. *See* discussion *infra* Part V.

430. *See* Michael D. Lord & Annette L. Ranft, *Acquiring New Knowledge: The Role of Retaining Human Capital in Acquisitions of High-Tech Firms*, 11 J. HIGH TECH. MGMT. RES. 295, 298 (2000) (discussing the importance and difficulties in retaining human capital during acquisitions).

431. *See* discussion *infra* Part V.A. (explaining the phenomenon of the "human capital lock-in").

432. Thomas C. Haynes, *Sam Walton is Dead at 74; the Founder of Wal-Mart Stores,* N.Y. TIMES, Apr. 6, 1992, at A1 (describing Sam Walton's intrapreneurial journey as an undervalued employee that as a result went on his independent way).

433. *See id*. (opening up about his disagreements with Chicago executives over Walton's plan to expand franchises to rural areas).

434. *See id*. (discussing his stent as a trainee with a small-town retailer in Des Moines after leaving the J.C. Penney Company).

435. *See id*. (referencing Walmart's "high sales volume at low prices" scheme that brought financial ruin to hundreds to small town merchants across the South and Midwest).

Computers.[436] Jobs later created Pixar Animations, which was thereafter acquired by Disney.[437] In 2011, Sachin Agarwal left Apple, taking along lessons in developing a culture of collaboration between management and developers as a tool to empower employees to innovate.[438] Agarwal implemented lessons he learned at Apple when founding Posterous, a successful blogging platform that was purchased later by Twitter.[439]

Employee turnover is a common phenomenon across all type of firms, not necessarily intrapreneurial.[440] Yet, intrapreneurial firms are unique in that their process of developing innovation involves distinct elements. Intrapreneurial firms are inclined to invest more than ordinary organizations on research and knowledge procurement in hopes of discovering the next breakthrough.[441] The entrepreneurial decision-making process

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436. *Steve Jobs Biography*, A&E TELEVISION NETWORKS (Apr. 2, 2014), https://www.biography.com/people/steve-jobs-9354805 (last updated Sept. 11, 2018) (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review) (providing a detailed biography of Steve Jobs and his intrapreneurial journey).

437. *See id*. (Steve Jobs had a talent to identify innovations and pursue them in various ventures).

438. *See* Bianca Male, *8 Management Lessons I Learned Working at Apple*, BUS. INSIDER (Aug. 2, 2010, 2:30 PM), https://www.businessinsider.com/management-lessons-i-learned-working-at-apple-2010-7 (last visited Feb. 13, 2019) (explaining the manager-employee culture of respect and the system of close-knit project teams) (on file with the Washington and Lee Law Review).

439. *See id*.

440. *See* Liz Ryan, *Employee Turnover Is a Leadership Problem*, FORBES (Aug. 1, 2016, 10:50 PM), https://www.forbes.com/sites/lizryan/2016/08/01/employee-turnover-is-a-leadership-problem/#50b198d83bc8 (last visited Feb. 13, 2019) (expressing concern over having to "constantly hire[] and train[]" new employees due to "extremely high" turnover in a tech support firm) (on file with the Washington and Lee Law Review); *see also The High Costs of Staff Turnover*, ECONOMIST (Sept. 20, 2018), https://www.economist.com/business/2018/09/22/the-high-costs-of-staff-turnover (last visited Feb. 13, 2019) (discussing a 2016 Deloitte survey's findings that the American software sector had an annual employee turnover rate of 24% in the second quarter of 2018) (on file with the Washington and Lee Law Review).

441. *See infra* note 450 and accompanying text; *see also* Eyal-Cohen, *supra* note 22, at 963 (stating that some firms invest a high proportion of their income in knowledge procurement in the hopes of deriving profits and expanding their

includes not only known calculable risks, but tremendous uncertainty about potential markets for the new discovery, its possible uses, and its forthcoming effects.[442] Lastly, the non-rivalry nature of innovative knowledge and the constant threat of competing firms underscores the transiency of the entrepreneurial process.[443] Accordingly, employees-intrapreneurs' exit can be extremely devastating to intrapreneurial organizations who not only are losing the returns on their investments in human capital, but are also at risk of losing monopoly on their discovery and their competitive position in the market.[444]

The question of whether and to what extent the law should interfere to determine who owns or controls innovative knowledge remains open.[445] Intrapreneurs find themselves in a predicament—feeling trapped by non-compete agreements, confidentiality agreements or other firm restrictions preventing them from utilizing their knowledge abilities.[446] Yet, the interests of the intrapreneurial firms and the innovative process are also relevant to consider when discussing employee mobility questions.[447] This Part attempts to fill this gap by considering the negative spillover of the innovation process from the intrapreneurial organizations' perspective.

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labor force).

442. *See* Eyal-Cohen, *supra* note 22, at 957 ("Entrepreneurs make their decisions in a state of uncertainty, without being able to calculate the likelihood or probabilities of an imminent sequence of events.").

443. *See* Daniel F. Spulber & Christopher S. Yoo, *Mandating Access to Telecom and the Internet: The Hidden Side of Trinko*, 107 COLUM. L. REV. 1822, 1844 (2007) (emphasizing the key role that short-run supra-competitive returns play in the horizontal competition).

444. *See* discussion *infra* Parts V.A–B.

445. *See* Drummonds, *supra* note 31, at 400 (questioning whether the law of trade secrets, non-competition agreements, employee duty of loyalty, and tortious interference encourage employee mobility in a knowledge-based economy).

446. *See id*. (noting that these legal processes "often operate to constrain employee mobility").

447. *See id*. (acknowledging employer interest in safeguarding their secrets and investments).

A. Human Capital Lock-In

Mobility of intrapreneurial human capital can greatly contribute to economic growth.[448] It may be instrumental in providing a missing link in the development of specific opportunities.[449] Intrapreneurial firms usually have plenty of resources to invest in the training and development of human capital.[450] By doing so, they maintain the supply of entrepreneurial talent. Investments in intrapreneurs provide them with knowledge, skills, and awareness to ideas that they can use in their next organization or independent venture.[451] Some of this information may be protected under intellectual property rights such as patents, trade secrets, and copyrights.[452] Yet, there are many organizational processes, undeveloped opportunities, strategic planning, and other innovative measures that cannot be legally protected.[453] For example, Facebook regularly holds "hackathon"—all-night coding sessions where employees focus on a project of their choosing, as long as it is different from their day job.[454] This exemplifies creative organizational processes that

448. *See* Klepper, *supra* note 404, at 79 (discussing knowledge spillovers amplified by human capital mobility).

449. *See, e.g.*, Ács, Audretsch & Strom, *supra* note 66, at 1; AUDRETSCH, KEILBACH & LEHMANM *supra* note 66, at 1 (describing the process of knowledge spillover and its importance to developing innovation).

450. *See* Derek Thompson, *Google X and the Science of Radical Creativity*, ATLANTIC (Nov. 2017), https://www.theatlantic.com/magazine/archive/2017/11/x-google-moonshot-factory/540648/ (last visited Feb. 13, 2019) (describing Google X, an innovation-focused Google subsidiary providing employees with resources and autonomy to develop new technology and inventions) (on file with the Washington and Lee Law Review).

451. *See* Catherine Clifford, *How Mark Zuckerberg Keeps Facebook's 18,000+ Employees Innovating: 'Is This Going to Destroy the Company? If Not, Let Them Test It.*', CNBC (June 5, 2017, 10:55 AM), https://www.cnbc.com/2017/06/05/how-mark-zuckerberg-keeps-facebook-employees-innovating.html (last visited Feb. 13, 2019) (endorsing a company structure that encourages risk-taking and fosters aggressive innovation by allowing employee engineers the freedom to "run their own experiments") (on file with the Washington and Lee Law Review).

452. *See supra* notes 6–8, 83–84 and accompanying text; *infra* note 456 and accompanying text.

453. *See supra* note 465 and accompanying text.

454. *See* Matt Weinberger, *'There Are Only Two Rules'—Facebook Explains*

develop a culture of innovation and encourage employees' alertness to opportunities.[455]

Accordingly, in the past decade many firms began utilizing contractual measures to protect their investment in human capital. Companies began to require employees to sign unilateral work-for-hire or corporate authorship agreements to establish ownership of the innovation knowledge.[456] Firms also initiated non-compete agreements to restrict employees from working in certain geographical regions, industries, or competitor firms.[457] Other legally binding arrangements that became common practice are non-disclosure and confidentiality agreements,[458] non-solicitation and non-dealing agreements,[459] and bonus-forfeiture agreements.[460] These legal arrangements aim to

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How 'Hackathons,' One of Its Oldest Traditions, Is Also One of Its Most Important, BUS. INSIDER (June 11, 2017, 10:00 AM), https://www.businessinsider.com/facebook-hackathons-2017-6 (last visited Feb. 13, 2019) (providing a brief history and explaining the concept of the "hackathon") (on file with the Washington and Lee Law Review).

455. *See* Doug Gross, *Coding and Red Bull*: *Facebook Holds All-Night Hacking Session*, CNN (May 18, 2012, 2:00 PM), https://www.cnn.com/2012/05/17/tech/social-media/facebook-night-before/index.html (last visited Feb. 13, 2019) (commenting on Facebook's culture of promoting innovation by encouraging employees to tweak software and engage with projects of their choice) (on file with the Washington and Lee Law Review).

456. *See* 17 U.S.C. § 101 (2018) (defining the concept of "work made for hire" under the 1976 Copyright Act). *See generally* U.S. COPYRIGHT OFF., CIRCULAR 9 REP. ON WORKS MADE FOR HIRE (2012), https://www.copyright.gov/circs/circ09.pdf.

457. *See* Evan Starr, J.J. Prescott & Norman Bishara, *Non-Competes in the U.S. Labor Force* 2 (U. of Mich. L. & Econ. Research, Working Paper No. 18–103, 2018), https://ssrn.com/abstract=2625714 (finding that in 2014, 38.1% of Americans have at some point been subject to a non-compete agreement, while 18.1% of Americans are currently working under a non-compete agreement).

458. *See* Katherine V.W. Stone, *The New Psychological Contract: Implications of the Changing Workplace for Labor and Employment Law*, 48 UCLA L. REV. 519, 577–78 (2001) (recognizing that litigation over restrictive covenants have become prevalent in the realm of employment contracts).

459. *See* Norman Bishara, Kenneth J. Martin & Randall S. Thompson, *An Empirical Analysis of Noncompetition Clauses and Other Restrictive Postemployment Covenants,* 68 VAND. L. REV. 1, 2 (2015) (examining CEO contracts and finding that 87.1% contain non-disclosure agreements, 75.6% of them bar solicitation of firm employees, and 50.8% contain provisions forbidding the solicitation of customers or clients).

460. *See, e.g.*, Tatom v. Ameritech Corp., 305 F.3d 737, 745 (7th Cir. 2002) (stating the proposition that anticompetitive clauses may be enforced as long as they are reasonable); Fearnow v. Ridenour, Swenson, Cleere & Evans, P.C., 138

deter employees-intrapreneurs from leaving their firms and taking their knowledge with them.[461] Lastly, under the federal Economic Espionage Act,[462] organizations can pursue criminal prosecution of their employees or competitors for commercial spying.[463]

In recent years, there has been considerable controversy surrounding these post-employment legal arrangements.[464] Unlike registered patents, these types of contractual covenants usually do not expire and have the potential to create a perpetual monopoly on ambiguously defined "protected information."[465]

P.3d 723, 726, 730 (Ariz. 2006) (en banc) (concluding that while an outright restriction on competition would be invalid, the court will enforce a forfeiture-for-competition arrangement that meets the standard for reasonableness); Brockley v. Lozier Corp., 488 N.W.2d 556, 563–64 (Neb. 1992) (acknowledging that while forfeiture-for-competition provision was unreasonable, such agreements are valid restrictive covenants if reasonable).

461. Larry A. DiMatteo, *Strategic Contracting: Contract Law as a Source of Competitive Advantage*, 47 AM. BUS. L.J. 727, 765 (2010) (contending that the purpose of the "often litigated" covenant not to compete is to deter employee movement to a competitor).

462. 18 U.S.C. § 1831 (2012).

463. *See* James H. A. Pooley, Mark A. Lemley & Peter J. Toren, *Understanding the Economic Espionage Act of 1996*, 5 TEX. INTELL. PROP. L.J. 177, 179 (1997) ("[T]he Economic Espionage Act was intended to address both the general need for a federal criminal deterrent against trade secret theft and the apparent threat of industrial espionage sponsored by foreign states.").

464. *See, e.g.*, Bishara, Martin & Thompson, *supra* note 459, at 5 ("[T]he last decade saw the advent of new or revised statutes and proposed legislation designed to refine how employers use these clauses to restrict . . . post-employment mobility and choices."); Ronald J. Gilson, *The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants to Not Compete,* 74 N.Y.U. L. REV. 575, 578 (1999) (examining different high tech industrial districts and concluding the differences lie between the enforcement of non-competes); Orly Lobel, *Enforceability TBD: from Status to Contract in Intellectual Property Law*, 96 B.U. L. REV. 869, 870–71 (2016) (detailing congressional efforts to limit restrictive covenants for employment). *But see* Jonathan Barnett & Ted M. Sichelman, *Revisiting Labor Mobility in Innovation Markets* 5, 12, 20 (USC Gould Ctr. of L. & Soc. Sci. Research, Working Paper No. 16–15 (2016), http://ssrn.com/abstract=2758854 (arguing that these studies misconstrue legal differences across states and otherwise are flawed, incomplete, or limited in applicability).

465. *See* Lobel, *supra* note 28, at 875 ("The broad language embedded . . . lists information that spans beyond the definition of trade secrets and explicitly includes information that is neither copyrightable nor patentable.").

Post-employment arrangements aim to place constraints on the employee's ability to carry knowledge and skills outside the organization.[466] Although scholars remain divided on the question of who owns innovation knowledge, these practices purport to legally allocate it *ex ante* to the firm, rather than the employee.[467] These post-employment restricting covenants have been applied even to lower-ranking employees in companies such as Jimmy John's and Starbucks.[468] These agreements became so common that they are utilized not only in entrepreneurial firms, but also in professional service firms.[469]

Moreover, the legal regimes regarding post-employment constraints vary from state to state. In states like California[470] and North Dakota, labor mobility is highly protected and most non-compete agreements are unenforceable.[471] Other state laws

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466. *See* Bishara, Martin & Thompson, *supra* note 459, at 7 (arguing that non-disclosure agreements that restrict the use and transfer of knowledge are designed to limit what would otherwise be "permissible competitive behavior"); *supra* note 548 and accompanying text.

467. *See id*. (observing that the security of a tailored restrictive covenant essentially gives the employer a "limited quasi-property right in . . . human capital").

468. *See* Drummonds, *supra* note 31, at 400 nn.93–98 (discussing agreements imposed on Jimmy John's employees restricting their ability to work within three miles of a Jimmy John's location that makes more than 10% of its revenue from selling sandwiches); *see also* Ben Rooney, *Jimmy John's Under Fire for Worker Contracts*, CNN (Oct. 14, 2014, 12:00 PM), https://money.cnn.com/2014/10/22/news/jimmy-johns-non-compete/index.html (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review).

469. *See id*. at 417 ("[T]he Securities and Exchange Commission brought an enforcement action under whistleblower rules and statutes against technology/engineering firm KBR[,] Inc. for requiring employees to sign confidentiality agreements that warned employees they could be fired if they discussed internal investigations with outside parties without . . . approval from KBR's lawyers.").

470. Section 16600 of the California Business Professional Code voids contracts that restrain people from engaging in a "lawful profession, trade, or business of any kind." CAL. BUS. & PROF. CODE § 16600 (2018); *see* Viva R. Moffat, *Making Non-Competes Unenforceable,* 54 ARIZ. L. REV. 939, 944 (2012) (criticizing the messiness and forum shopping of non-compete enforcement and calls for uniformity in non-compete laws).

471. *See* Moffat, *supra* note 470 ("California and North Dakota both have statutes rendering virtually all non-competition agreements unenforceable."). Montana, Oklahoma, and Georgia have similar statutes or constitutional provisions. *Id*.

uphold such agreements with significant deference.[472] Accordingly, these measures have been subject to inconsistent judicial enforcement.[473] In recent years, several courts have narrowed the scope of protection granted to employers and favored employees' mobility and entrepreneurship.[474] Others have provided limited ownership of the innovative knowledge to the firm and prevented employees from taking up certain positions.

There are elevated negative externalities to the use of labor restricting practices in the intrapreneurial context. These arrangements may decrease the intrapreneurs' outside worth in the labor market, and thus hamper society's interest in interchangeability of knowledge and ideas.[475] Moreover, intrapreneurial firms themselves benefit from spillovers and a healthy labor market with a greater pool of future employees that are more knowledgeable, skillful, and proficient to choose from.[476] Thus, limitations on firms' ability to free intrapreneurs may, at the same time, prevent them from acquiring said talent.

From an organizational perspective, intrapreneurial firms disclose valuable information to intrapreneurs, invest in their training, provide them with access to competitive information, and entrust them with confidential data not intended to leave the

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472. *See, e.g.*, MICH. COMP. LAWS ANN. § 445.774a (2018) ("An employer may obtain . . . an agreement or covenant which protects an employer's reasonable competitive business interests and . . . prohibits an employee from engaging in employment or a line of business after termination . . . if [it] is reasonable as to . . . duration, geographical area, and the type of employment or line of business.").

473. *See* Daniel D. Quick, *Physician, Meet Thy Covenant*, 86 MICH. BAR J. 22, 22 (2007) (examining a "national split of authority" as to how physician non-competes are viewed by the courts).

474. *See, e.g.*, W.R. Grace & Co. v. Hargadine, 392 F.2d 9, 20 (6th Cir. 1968) (choosing to construe a restrictive covenant narrowly, thus rendering it unenforceable).

475. *See* discussion *supra* Part III.B (acknowledging the importance of allowing intrapreneurs to exit with their own knowledge and ideas in order to facilitate an expansion of innovation that is beneficial to society).

476. *See* discussion *supra* Part III.A (noting that employers committed to talent development often groom employees to develop entrepreneurial skills and knowledge that they can later share with other market players or utilize in their own ventures).

organization.[477] Thus, firms may also seek a form of assurance that they will be able to receive a fair return on their investment in their employees' human capital.[478] Via restrictive covenants, firms prohibit intrapreneurs from exploiting the knowledge gained during their employment.[479] They attempt to restrict the ability of employees to use knowledge they acquired in future employment or in independent endeavors.[480] Next, this Article describes measures that address limitations on future employers' ability to hire intrapreneurs.

B. Human Capital Lock-Out

Free competitive markets will always entail competition, and that may involve hiring the employees of other employers.[481] Firms may attempt to prevent valuable employees from leaving the organization.[482] Yet, once these employees have made up their mind, in light of the risk of losing competitive information, intrapreneurial firms may use various techniques in an attempt to lock the employee out of securing employment elsewhere.[483] Anti-poaching is one technique intrapreneurial firms may use.[484]

Poaching in the intrapreneurial context refers to when an external organization strategically attempts to hire intrapreneurs away from their current employers.[485] This is a fundamental

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477. *See supra* notes 450–51 and accompanying text.

478. *See generally* Bishara, *infra* note 549 (attempting to balance the interests of employers protecting their own investment in human capital with the interests of society in encouraging the future development of human capital via employee mobility).

479. *Supra* notes 456–61 and accompanying text.

480. *See* Starr, Prescott & Bashara, *supra* note 457, at 2 (noting that employers seek to curtail product-market competition by preventing valuable information and skills learned in their previous endeavors from reaching competitors).

481. *See* Drummonds, *supra* note 31, at 405 (observing that recruiting employees working for other employers is a central aspect of free labor markets).

482. *See* discussion *supra* Part V.A (detailing various forms of restrictive covenants between employers and employees).

483. *See infra* notes 502, 529, 535 and accompanying text.

484. *See infra* notes 502–528 and accompanying text.

485. *See* Lobel, *supra* note 28, at 828 (explaining the purpose of non-poaching clauses).

element of free labor markets and the freedom to contract.[486] What is unique in the intrapreneurial context is that companies actively look at the abilities and careers of certain intrapreneurs, their level of knowledge and inside information.[487] They aggressively recruit those intrapreneurs who seem to have obtained the greatest valuable organizational knowledge in order to acquire that knowledge for free, improving the poacher's competitive position in the market.[488] Labor law scholars have described such aggressive hiring of competitors' employees as free riding and raids, and have questioned whether the law should interfere to prevent such incidents.[489] Others have argued that an inability to control employee mobility may disincentivize companies from investing in employee training.[490]

This type of behavior is not unique to the innovative industry.[491] Employers in different industries—including academia—seek to engage in the lateral hire of experienced

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486. *See* Drummonds, *supra* note 31, at 405 (discussing the critical role of poaching in wealth creation, innovation, and the "traditionally American style of structuring business relationships around free markets and competition").

487. *See id.* (observing that "hot startups" like Uber and Airbnb "attack" more established firms like Google and Apple seeking their employees' knowledge, skill, and ideas). Likewise, start-ups "raid each other for employees and their cognitive property, ideas, and knowledge." *Id.*

488. *See id.* (quoting Amazon CEO Jeff Bezos's statement that employees from established companies like Amazon "are recruited every day by other world-class companies").

489. *See* LOBEL, *supra* note 28, at 4 (calling upon free market approach that relies very much on employee reputation in the labor market).

490. Brandon S. Long, *Protecting Employer Investment in Training: Noncompetes vs. Repayment Agreements*, 54 DUKE L.J. 1295, 1302 (2005) ("A lack of protection against employee mobility acts as a 'double hit' to the employer, which not only loses its monetary investment in developing the employee's skill set but also sacrifices potential market advantage to the competitor . . . .").

491. Uliana Pavlova & Leslie Patton, *States Want Fast Food Chains to Allow Employee Poaching*, BLOOMBERG (July 9, 2018, 3:36 PM), https://www.bloomberg.com/news/articles/2018-07-09/fast-food-gets-a-new-headache-as-states-target-hiring-practices (last updated July 9, 2018, 6:13 PM) (last visited Feb. 13, 2019) (discussing impending investigations by state attorney generals into the "no-poaching agreements" at some of the fast food industry's largest chains, including Arby's, Burger King, Dunkin' Donuts, Five Guys, Panera, and Wendy's).

workers from rivals with institutional knowledge and training.[492] It saves them from making the same investment in knowledge themselves—"such is the American way."[493] On the other hand, poached firms also seek to safeguard their investments in human capital and their organizational knowledge.[494] Yet, they would like to reserve the opportunity to be poachers themselves and tap into the talent, skill, knowledge, and ideas of their competitors' employees.[495]

While in non-compete and non-disclosure agreements, employees-intrapreneurs are being sued by their former organizations.[496] In poaching cases, the organization-plaintiff usually aims for deeper pockets;[497] organizations sue their competitors for stealing their trade secrets, confidential information, and organizational knowledge by luring their intrapreneurs away.[498] For instance, in late 2017, Office Depot

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492. *See* Paul Basken, *Boom in Academic Poaching Is Fueled by Vision of Economic Development*, CHRON. HIGHER EDUC. (July 23, 2015), https://www.chronicle.com/article/Boom-in-Academic-Poaching-Is/231859 (last visited Feb. 13, 2019) (detailing the academic poaching climate at several American research universities, including the University of Southern California's recruitment of a leading researcher of Alzheimer's disease from the University of California at San Diego) (on file with the Washington and Lee Law Review); *see also* Stephen Murphy, *Duke, UNC, and Nonpoaching Agreements—What Not to Do*, LAW360 (June 24, 2015, 10:17 AM), https://www.law360.com/articles/670750/duke-unc-and-nonpoaching-agree ments-what-not-to-do (last visited Feb. 13, 2019) (noting that many universities and medical facilities in close geographic proximity engage in the poaching practice) (on file with the Washington and Lee Law Review).

493. Drummonds, *supra* note 31, at 404–06.

494. *See* Long, *supra* note 490, at 1303 (recognizing that employers reserve a right to protect investments in their own business); *supra* note 478 and accompanying text.

495. *See supra* note 487 and accompanying text.

496. *See* Koby Levin, *As Non-compete Agreements Proliferate, So Do Lawsuits*, AP NEWS (Mar. 23, 2018), https://www.apnews.com/70f0855282de43299 08957fa7b1e278d (last visited Feb. 13, 2019) (noting that large employers typically bring non-compete suits against high-level employees) (on file with the Washington and Lee Law Review). Claims against employees in smaller industries have also increased significantly. *See id*. (referencing lawsuits filed against a salon technician, a wheelchair design operator, and even a pest control specialist).

497. *See infra* notes 498–499 and accompanying text.

498. *See* Eriq Gardner, *Viacom Sues Netflix for Employee Poaching*, HOLLYWOOD REP. (Oct. 16, 2018, 11:33 AM), https://www.hollywoodreporter.com/thr-esq/viacom-sues-netflix-employee-poaching-1152721 (last visited Feb. 13, 2019)

filed suit against its smaller rival, HD Supply, claiming that HD improperly gained access to Office Depot's "confidential, proprietary and trade secret information" through the hiring of a highly-ranked manager.[499] Office Depot's suit accuses HD Supply of engaging in unfair competition and aiding and abetting the employee's "breach of restrictive covenants, breach of fiduciary duty and breach of loyalty."[500] The court has yet to decide this case.[501]

Nevertheless, in recent years we have witnessed the opposite phenomenon. Hiring conspiracies, anti-poaching, and no-raid agreements between organizations have begun to draw antitrust authorities' attention.[502] Under these agreements, top management agrees *ex ante* to avoid approaching, recruiting, or

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(reporting that Viacom has filed a lawsuit against streaming giant Netflix for poaching its employees "in an effort to illegally augment its own workforce . . . regardless of the nature of [the employees'] ongoing contractual obligations to their current employer") (on file with the Washington and Lee Law Review); *see also* Grace Dobush, *First Ebay Sent Amazon a Cease-and-Desist Order. Now It's Suing*, FORTUNE 500 (Oct. 18, 2018), http://fortune.com/2018/10/18/ebay-amazon-poaching-sellers-lawsuit/ (last visited Feb. 13, 2019) ("E[b]ay is now accusing Amazon of intentional interference with contractual relations and economic relations . . . .") (on file with the Washington and Lee Law Review); Drummonds, *supra* note 31, at 406–07 (providing numerous examples of poaching disputes, including a lawsuit brought by Tyco against its rival, Conbraco Industries, alleging trade secret use and a lawsuit brought by human-fitness-tracking firm Jawbone against Fitbit, Inc.).

499. Jeff Ostrowski, *Office Depot Sues HD Supply, Accuses Rival of Raiding Employees, Trade Secrets*, PALMBEACHPOST (Oct. 27, 2017, 12:01 AM), https://www.palmbeachpost.com/business/office-depot-sues-supply-accuses-rival-raiding-employees-trade-secrets/U7OkaOmaBZ6zEjmVJx9nOP/ (last updated Oct. 27, 2017, 4:44 PM) (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review).

500. *Id.*

501. *See id.* (stating that as of October 2017, HD Supply had not yet responded in court).

502. *See* Mark L. Krotoski, *DOJ Antitrust Division Announces Imminent Criminal Prosecution for 'No Poaching' Agreements*, NAT'L L. REV. (Feb. 6, 2018), https://www.natlawreview.com/article/doj-antitrust-division-announces-imminent-criminal-prosecution-no-poaching (last visited Feb. 13, 2019) (stating that the DOJ would be seeking harsher criminal penalties against companies that engage in no-poaching agreements in violation of the Sherman Act due to the popularity of such illegal conduct) (on file with the Washington and Lee Law Review).

employing another organization's employees and vice versa.[503] These agreements are depicted as anticompetitive and a confinement of labor and trade.[504] They are viewed as hiring collusions on the ability of employees to move freely in the employment market.[505]

Reports show that Apple's founder Steve Jobs and Google's CEO Eric Schmidt mutually agreed not to recruit each other's employees.[506] These practices were routinely utilized with Google and Apple's business partners, as well.[507] In fact, in September 2015, Apple, Google, Intel, and Adobe agreed to pay employees $415 million in order to settle claims that these Silicon Valley tech giants conspired in illegal anti-poaching activities.[508] Filed by former employees of the respective companies, the lawsuit alleged that major tech industry players had formed an illegal pact to refrain from poaching or hiring each other's staff.[509] Plaintiffs argued such agreements limited their career mobility and stifled attempts to earn higher salaries.[510] The settlement followed a 2009 antitrust investigation into the companies by the Department of Justice (DOJ).[511] During this investigation, the DOJ determined that the same group of Silicon Valley companies—Adobe, Apple,

503. *See infra* note 506 and accompanying text.

504. *See* Drummonds, *supra* note 31, at 407 ("[A]nti-poaching or no raid agreements suffer presumptive condemnation in our law as an anti-competitive restraint of trade in the labor markets.").

505. *Infra* notes 506–514 and accompanying text.

506. *See* David Streitfeld, *Engineers Allege Hiring Collusion in Silicon Valley*, N.Y. TIMES, Feb. 28, 2014, at A1 (reporting class-maction lawsuit that accused industry executives of agreeing between 2005 and 2009 not to poach one another's employees).

507. *Id*.

508. Lance Whitney, *Apple, Google, Others Settle Antipoaching Lawsuit for $415 Million*, CNET (Sept. 3, 2015, 8:32 AM), https://www.cnet.com/news/apple-google-others-settle-anti-poaching-lawsuit-for-415-million (last visited Feb. 13, 2019) (on file with the Washington and Lee Law Review).

509. *See id*. ("Email exchanges among . . . top executives . . . revealed how requests were made not to hire certain employees away from each other.").

510. *See id*. (chronicling employee concerns).

511. *See* Tom Krazit, *DOJ Settles No-Recruit Claims Against Tech Companies*, CNET (Sept. 24, 2010, 1:59 PM), https://www.cnet.com/news/doj-settles-no-recruit-claims-against-tech-companies/ (last visited Feb. 13, 2019) ("Six Silicon Valley companies have agreed not to enter into further non-solicitation agreements as the result of a settlement with the Department of Justice.") (on file with the Washington and Lee Law Review).

Google, Intel, Intuit, and Pixar— agreed not to solicit or "cold call" employees of other companies.[512] Although the agreements did not explicitly prohibit companies from hiring employees altogether, the DOJ felt that the pact was "broader than reasonably necessary for any collaboration between the companies."[513] Following the Apple–Google anti-poaching case, many other similar settlements over anti-poaching allegations resurfaced involving conglomerates such as Microsoft, Oracle, eBay, Ask.com, DreamWorks Animation, and others.[514]

Anti-poaching agreements have been denounced as "an unreasonable restraint of trade" and a violation of antitrust laws.[515] In the case of agreements not to compete for customers, the latter end up "paying higher prices because of the lack of competition."[516] Whereas in the case of agreements not to poach employees, workers "receiv[e] lower wages because of the lack of competition."[517] Intrapreneurs could achieve similar results by making sure their employees are not looking to leave.[518]

In 2014, the online auction site eBay also settled a suit accusing it of engaging in a secret deal with software company Intuit to avoid hiring each other's employees.[519] Following a DOJ

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512. *Id*.

513. *Id*.

514. *See* Drummonds, *supra* note 31, at 408–09 (recapping a host of "spin-offs" from the Google/Apple deal that triggered more allegations of collusion).

515. *See Silicon Valley's No Poaching Case: The Growing Debate over Employee Mobility*, U. PENN. (Apr. 30, 2014), http://knowledge.wharton.upenn.edu/article/silicon-valleys-poaching-case-growing-debate-employee-mobility/(last visited Feb. 13, 2019) (referencing Section 1 of the Sherman Antitrust Act of 1890) (on file with the Washington and Lee Law Review).

516. *Id*.

517. *Id*.

518. David Streitfeld, *Ebay Settles No-Poaching Case*, N.Y. TIMES, May 1, 2014 (stating that "[t]he [federal antitrust settlement], announced by the Justice Department . . ., follows the pattern of the department's 2010 settlement against Google, Apple, Intuit and other Silicon Valley companies over similar accusations").

519. *See* Howard Mintz, *Ebay Settles No-Poaching Case with California*, MERCURY NEWS (May 1, 2014, 6:52 AM), https://www.mercurynews.com/2014/05/01/ebay-settles-no-poaching-case-with-california-and-u-s-government/ (last updated Aug. 12, 2016, 9:35 AM) (last visited

investigation, eBay entered into a consent decree that bars the company from entering into anticompetitive agreements for five years.[520] The popularity of anti-poaching agreements has led the DOJ to take more extreme measures.[521] In 2018, the Antitrust Division announced that it would be proceeding with criminal charges against companies that engage in anti-poaching agreements rather than simply pursuing civil settlements.[522]

Aside from antitrust concerns and negative publicity, anti-poaching agreements also negatively affect intrapreneurial firms' ability to procure intrapreneurs in their industry and to effectively combine resources. In many situations, firms play a dual role; they may be both the poached and the poachers.[523] Companies utilize contractual restrictions on employees' freedom during and after employment.[524] Yet, firms may face the same restrictions when attempting to recruit intrapreneurs.[525] Firms' recruitment efforts to maintain their team of employees-intrapreneurs may be restricted by the prevalence of those same agreements.[526] When hiring or retaining talented intrapreneurs, intrapreneurial firms may be gridlocked by similar employment-restricting covenants signed by sought after employees.[527] Consequently, they are left with either internal talent (that might leave), new and inexperienced intrapreneurs, or employees from other industries. Accordingly, their ability to benefit from knowledge spillover and rejuvenated alertness to innovative opportunities is lessened.[528]

Feb. 13, 2019) (noting that the government's 2012 lawsuit against eBay focused on allegations that top executives, including the company's former CEO, entered into anti-poaching "side deals" with Intuit) (on file with the Washington and Lee Law Review).

520. *Id*.

521. *See* Krotoski, *supra* note 502 and accompanying text.

522. *See supra* note 502 and accompanying text.

523. Drummonds, *supra* note 31, at 406 ("[T]oday's poached employer may be tomorrow's poaching employer.").

524. *See supra* note 466 and accompanying text.

525. *See supra* notes 487, 494–495 and accompanying text.

526. *See supra* notes 487, 494–495 and accompanying text.

527. Drummonds, *supra* note 31, at 407 (acknowledging that anti-poaching agreements can be detrimental to a firm's efforts to improve its workforce by "tapping the labor available" in a free market).

528. *See* discussion *supra* Part III.B (stressing the importance of knowledge

At times, companies who would like to attract instrumental intrapreneurs will engage in "acqui-hiring"—buying the entire company, rather than individual employees.[529] In several of Facebook and Google's recent start-up acquisitions,[530] it was not the firm's technology or resources that motivated the purchase.[531] Rather, their main purpose was to enlist a contingent of the start-up's product engineers.[532] This strategy helped to fulfill intrapreneurial organizations' intense demand for engineering talent.[533] Acqui-hiring, therefore, utilizes the human capital in the firm, but forces the firm to relinquish the projects.[534]

Lastly, garden leave agreements are another form of lock-out agreements.[535] These covenants are signed by employees prior to commencement of their employment at the firm or during a post-employment settlement.[536] Under those contracts, employees continue to get paid their full salary during a period in which they

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spillover and information-sharing among market players through employee exit opportunities).

529. *See* John F. Coyle & Gregg D. Polsky, *Acqui-Hiring*, 63 DUKE L.J. 281, 283–84 (2013) (describing the process of firm purchase instead of employee hiring).

530. *See id.* at 283 (noting that Facebook, Google, and other leading companies in the Silicon Valley have been purchasing start-up companies "at a brisk pace").

531. *See id.* ("[T]he buyer has little interest in acquiring the startup's projects or assets.").

532. *See id.* (reasoning that the buyer's "primary motivation is to hire some or all of the startup's software engineers").

533. *See id.* at 294 (recognizing that acqui-hiring allows large technology companies to obtain the services of several talented engineers and entrepreneurs "in one fell swoop").

534. *See* Miguel Helft, *For Buyers of Web Start-ups, Quest to Corral Young Talent*, N.Y. TIMES, May 18, 2011, at A1 ("Companies like Facebook, Google[,] and Zynga are so hungry for the best talent that they are buying start-ups to get their founders and engineers—and then jettisoning their products.").

535. A garden leave clause, unlike a restrictive covenant, requires that the employee provides the employer with a "specific, reasonably long period of notice before terminating the employment." Greg T. Lembrich, Note, *Garden Leave: A Possible Solution to the Uncertain Enforceability of Restrictive Employment Covenants*, 102 COLUM. L. REV. 2291, 2292 (2002).

536. *See id.* at 2313 (criticizing pre-employment covenants restricting post-employment periods).

are restricted from competing with their former employers.[537] Garden leave agreements have been mainly used in Europe,[538] and are based on the idea that "the employer pays the employee to stay at home and tend to his or her 'garden.'"[539] They often also include provisions similar to non-competition prohibitions.[540]

To conclude, keeping knowledge in the firm is a crucial resource to encourage intrapreneurial firms to invest in human capital.[541] Yet, these types of lock-out labor restrictions may be a step too far, creating several negative externalities.[542] Aside from placing a limitation on the ability of intrapreneurs to seek out and utilize innovative opportunities, it inhibits the recruitment efforts of intrapreneurial firms themselves.[543] It inhibits innovative knowledge spillover, and thus is harmful to society.[544] The restrictions placed via human capital lock-out practices seem excessive because in contrast with human lock-in practices, they not only limit the use of confidential knowledge but also place restrictions on the freedom of employee mobility.[545] The next Part

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537. *See id*. at 2292 (noting also that the employer cannot force the employee to perform any work during this period).

538. *See* Jeffrey S. Klein & Nichols J. Pappas, *'Garden Leave' Clauses in Lieu of Non-Competes*, 241 N.Y. L.J. 24, 24 (2009) (noting that employers in the U.K. have been using these clauses for years, but that they are becoming increasingly common among U.S. employers).

539. *Id*.

540. *See id*. at 25 (explaining that garden leave agreements often contain provisions "prohibiting the employee from working for another employer during the term of the agreement").

541. *See* discussion *supra* Part III.B (emphasizing the importance of training and knowledge within intrapreneurial firms in order to maintain "human capital as greenhouses for future entrepreneurs").

542. *See* Drummonds, *supra* note 31, at 417 (arguing that employees who may feel bound by a restrictive agreement "*not* to use the ideas, skills, knowledge, and creative and innovative potential they have acquired," thus negatively impacting the employee, the collective employers, and the larger economy).

543. *See id.* (acknowledging that the flow of information and cross-fertilization inherent in changing employers is so often restricted by the "vague application of trade secrets . . . and the existence of [non-disclosure agreements] and similar contractual restrictions applying post-employment").

544. *See* discussion *supra* Part III.B (emphasizing the importance of knowledge spillover to the development of innovation in society).

545. Gilson, *supra* note 464, at 595 ("[A]n individual employer has an obvious competitive interest in protecting its intellectual capital which . . . is accomplished by restricting employee mobility.").

will attempt to find a balance between the positive and negative spillovers of intrapreneurships.

VI. Balancing the Interests of Innovation Agents

The continuous supply of entrepreneurial talent, exit opportunities, and knowledge spillovers are central social benefits produced by intrapreneurial firms.[546] However, the latter also creates social harms by attempting to curb the drift of competitive knowledge out of the firm or free ride it by raiding other firms' employees.[547] Post-employment restrictive contracts or anti-poaching arrangements do not foster idea sharing or alertness to new opportunities.[548] They confine the freedom and exchange of knowledge across organizations, industries, and markets.[549]

Intrapreneurial firms may motivate employees' loyalty daily by adopting various practices. [550] Bonuses, financial incentives, and ownership participation based on long-term individual

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546. *See* discussion *supra* Part III.

547. *See supra* Part IV.

548. *See* Laura G. Pedraza-Fariña, *Spill Your (Trade) Secrets: Knowledge Networks as Innovation Drivers,* 92 NOTRE DAME L. REV. 1561, 1590 (2017) (explaining that non-competes and trade secrets deter employees from sharing information across boundaries of departments and firms and also deter employers from hiring employees who have been deeply involved in projects to avoid costly litigation).

549. *See* Norman D. Bishara, *Covenants Not to Compete in a Knowledge Economy: Balancing Innovation from Employee Mobility Against Legal Protection for Human Capital Investment*, 27 BERKELEY J. EMP. & LAB. L. 287, 308 (2006) (arguing that eliminating non-competes allows for technical information and innovation to be shared quickly, without restrictions, and noting this type of sharing and the ban on non-competes allowed Silicon Valley to be innovative and successful, while other industries have decidedly floundered in comparison).

550. *See* Norman D. Bishara, *Covenants Not to Compete in a Knowledge Economy: Balancing Innovation from Employee Mobility Against Legal Protection for Human Capital Investment*, 27 BERKELEY J. EMP. & LAB. L. 287, 308 (2006) (arguing that eliminating non-competes allows for technical information and innovation to be shared quickly, without restrictions, and noting this type of sharing and the ban on non-competes allowed Silicon Valley to be innovative and successful, while other industries have decidedly floundered in comparison); *see* MORRIS, KURATKO & COVIN, *supra* note 378, at 192 (describing employee motivation to "achieve awards" that "can take any number of forms").

performance are some examples.[551] Emphasizing job security is another.[552] Yet, in many situations involving intrapreneurs these are not sufficient.[553] Competitors' poaching, dissatisfaction from organizational bottlenecks, or the urge to embark on an independent path contribute to the desire of some intrapreneurs to exit firms and take with them the knowledge they attained.[554] Although many of the capabilities of the firm are "fungible" and can be applied to different productive activities, much of the firm's knowledge cannot be codified and remains implicit.[555] This "organizational technology and knowledge" is separate and greater than the individual intrapreneurs' knowledge.[556] The latter often cannot completely identify and separate their own part in it.[557] Why should firms continue to groom intrapreneurial agents knowing that they may act autonomously or strategically?

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551. *See id*. ("Some people seek financial rewards; others seek power and status; while still others strive for personal development and career enhancement, self-actualization, or social rewards (e.g., friendships and camaraderie).").

552. *See id*. at 194 (listing job security among a long list of potential intrinsic and extrinsic rewards that may provide entrepreneurial motivation).

553. *See* Samuel Bacharach, *How to Retain Your Intrapreneurs*, INC. (Jan. 2, 2014), https://www.inc.com/samuel-bacharach/how-to-retain-intrapreneurs.html (last visited Feb. 13, 2019) (stating that when innovation is hampered within a company, intrapreneurs may be driven out to seek entrepreneurial opportunities) (on file with the Washington and Lee Law Review).

554. *See id*. (explaining that bureaucratic procedures and inflexible company policies may harm the creativity of intrapreneurs and cause them to look for work elsewhere).

555. *See* Susan Sturm & Lani Guinier, *The Law School Matrix: Reforming Legal Education in a Culture of Competition and Conformity*, 60 VAND. L. REV. 515, 521–22 (2007) (noting that culture is "knowledge, techniques, norms, rules, and behavioral patterns" that employees essentially absorb throughout their employed time at a company. It can include "collective rites of passage, . . . how value is assessed and communicated, and how status is negotiated . . . .").

556. *See* Rachel S. Arnow-Richman, *Bargaining for Loyalty in the Information Age: A Reconsideration of the Role of Substantive Fairness in Enforcing Employee Noncompetes*, 80 OR. L. REV. 1163, 1189 (2001) (stating that "not all proprietary information can be easily captured or defined" within a company because it is frequently "composite or abstract").

557. *See* MICHAEL POLANYI, PERSONAL KNOWLEDGE: TOWARDS A POST-CRITICAL PHILOSOPHY 5 (1958) (explaining the great difficulty for individuals to objectively understand their contributions).

A. Labor Law

The answer to the question above lies in the innovation process. Strategic behavior of intrapreneurs, in and of itself, provides the means for extending the firms' frontiers of discovery.[558] Intrapreneurial mobility reveals unique resource combinations and expands firms' synergies and capabilities.[559] It enlarges the firms' organizational abilities and provides new avenues for future development.[560]

There are various private ordering measures intrapreneurial players can take that may be effective. Whether financial, professional, or social, rewards greatly impact employees' motivation and retention.[561] Some influential factors that contribute to successful retention of intrapreneurs include power and status,[562] personal development and career advancement,[563]

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558. *See* Ibrahim, *supra* note 35, at 1746–47 (claiming that entrepreneurial disruptive innovations can destroy or end up occupying the niche filled by a corporation in some way, while internal entrepreneurship or intrapreneurship can strategically avoid disruptions that replace them, and put them on the forefront of innovation).

559. *See* Charles A. Sullivan, *Tending the Garden: Restricting Competition via "Garden Leave,"* 37 BERKELEY J. EMP. & LAB. L. 293, 319 (2016) (arguing that "heightened employee mobility ensures knowledge spillovers"); *see also* Magnus Henrekson, *Entrepreneurship and Institutions*, 28 COMP. LAB. L. & POL'Y J. 717, 737–38 (2007) (noting that mobility between tasks and groups is an ideal condition, and the productivity growth of a company has been seen to correlate with the gross flow of workers).

560. *See* Long, *supra* note 490, at 1320 (allowing companies to retain trained employees helps protect the economic investment in people which is an interest they are looking to protect).

561. *See* MORRIS, KURATKO & COVIN, *supra* note 378, at 192 ("Clearly, rewards represent a very potent tool to influence employee behavior on the job . . . .").

562. *See* Matthew Kenney & Bahaudin G. Mujtaba, *Understanding Corporate Entrepreneurship and Development: A Practitioner View of Organizational Intrapreneurship*, 12 J. OF APPLIED MGMT. & ENTREPRENEURSHIP 73, 74 (2007) (arguing that successful entrepreneurial firms encourage competition and recognition for successful innovations).

563. *See id*. at 78 (discussing the importance for firms to provide training and support for intrapreneurial employees).

self-completion,[564] or friendship and social rewards.[565] Naturally, intrapreneurs also seek solid financial rewards and pay system.[566] Scholars argue that these financial rewards must be extensive in order to motivate employees-intrapreneurs not to leave the organization and pursue entrepreneurship independently.[567] Intrapreneurs may also attempt to narrow the scope of their post-employment agreements specifically to the use of protected knowledge, rather than to future employment in general.[568]

Knowing that intrapreneurs may leave, intrapreneurial firms can take the following precautions to lower their risk.[569] They may limit access to the sensitive information available to each intrapreneur or restrict access to only a few trusted employees.[570] Firms may assign ownership interest to these individuals to increase their incentives for positive participation in the enterprise.[571] Firms may also act more rapidly in rewarding or

564. *See id*. at 75 (describing the need to encourage employees to be in charge of their innovation project and negotiate for the ability to bring the new process or product to the market).

565. *See* MORRIS, KURATKO & COVIN, *supra* note 378, at 193–94 (noting that other contributing factors include: compensation and/or reward practices, emphasized job security over high pay, selection of staffing, and job design).

566. *See* Marianna Makri, Peter J. Lane & Luis R. Gomez-Mejia, *CEO Incentives, Innovation, and Performance in Technology-Intensive Firms: A Reconciliation of Outcome and Behavior-Based Incentive Schemes,* 27 STRATEGIC MGMT. J. 1057, 1058 (2006) (discussing the need for both outcome-based and behavior-based bonuses to incentivize CEO innovation and implementation of new developments).

567. *See* PINCHOT, *supra* note 334, at 95 (noting that financial rewards are important but are not the only factor that motivates intrapreneurs).

568. *See* Matthew Rossetti, *Non-Competes: Useful or Futile?*, FORBES (Jan. 30, 2018, 9:00 AM), https://www.forbes.com/sites/forbeslegalcouncil/2018/01/30/non-competes-useful-or-futile/#45f493426581 (last visited Feb. 13, 2019) (reporting that employers bear the burden of proving the reasonableness of non-competes and employees are encouraged to look over the agreement with a lawyer before signing and bargain for the most reasonable agreement) (on file with the Washington and Lee Law Review).

569. *See id*. (using non-compete clauses as a way to combat potential loss of intrapreneurs); Chris Opfer, *The Coca-Cola Hack and Who's on Hook for Office Cybersecurity*, BLOOMBERG NEWS, (Jan. 11, 2018), https://www.bna.com/cocacola-hack-whos-n73014474058/ (last visited Feb. 13, 2019) (providing restriction of information as another method of reducing loss—should employees decide to leave) (on file with the Washington and Lee Law Review).

570. For example, Coca-Cola restricts employee access to its secret formula. *See* Opfer, *supra* note 569.

571. *See* MORRIS, KURATKO & COVIN, *supra* note 378, at 194 (mentioning that

firing intrapreneurial actors based on their performance.[572] In order to prevent the problem of other companies' free-riding investment in human capital, firms may also take advantage of repayment agreements.[573] These covenants require employees to reimburse firms for their training expenses if they resign before their employer recoups such investments.[574] Although cases involving such agreements are rare, courts have shown willingness to enforce them.[575] Such agreements could, therefore, be used to offset some of the negative effects of poaching of low or middle-rank employees.[576]

Nevertheless, in some cases, private ordering solutions may not work and parties acting opportunistically may threaten the firm's future operations or limit employment freedom.[577] Organizational information, client lists, confidential information, strategic planning, and product-planning data may encompass trade secrets and competitive knowledge that are the frequent subject of litigation.[578] Yet, if such protected information will be

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a potential reward for an employee is "equity or shares in the company").

572. *See* Richard A. Peterson, *Entrepreneurship and Organization, in* HANDBOOK OF ORGANIZATIONAL DESIGN 10 (Paul C. Nystrom & William H. Starbuck eds., 1981) (describing four ways to efficiency design entrepreneurship in an organization).

573. *See* Long, *supra* note 490, at 1297 ("[R]epayment agreements offer a sensible alternative whereby an employer's level of protection moves in lockstep with the cost of, and value derived from, the training.").

574. *See id.* (explaining the benefit of repayment agreements compared to non-compete agreements because of the ability to directly regain an investment made in training).

575. *See, e.g.*, Milwaukee Area Joint Apprenticeship Training Comm. v. Howell, 67 F.3d 1333, 1340 (7th Cir. 1995) (upholding a repayment clause when it required an electrical apprentice to repay the cost of his training to an apprentice training trust fund after he chose to work for a competitor).

576. *See id.* at 1340 (explaining public benefits of this type of provision so that "freeloading" companies do not benefit from funds spent by others to train their employees).

577. *See* Bishara, *supra* note 549, at 301 (describing the incentives which motivate employees to leave for other companies to "maximize her wages" allowing another opportunistic company to benefit from their investment in training).

578. *See* RESTATEMENT (THIRD) OF UNFAIR COMPETITION § 39 (AM. LAW INST. 1995) (defining a trade secret as something that is not readily or publicly known,

construed narrowly, intrapreneurial firms will adjust their practices and coordinate the appropriate degree of exposure of each employee-intrapreneur to other factors such as rewards, advancement, and equity.[579]

On the other hand, since innovative knowledge is non-rival and uncertain, there is also a need to reassure firms that will invest in its procurement and in training future entrepreneurs.[580] In cases such as the Uber–Google saga, it seems appropriate to limit the ability to use confidential information, rather than limit the intrapreneurs' mobility. A balance can be struck by limiting the ability of such employees to work on projects (not firms) with similar technology for a reasonable period of time.[581] In such circumstances, legal doctrines such as fiduciary and loyalty duties can be construed widely.[582] Utilizing these doctrines, intrapreneurs should be restricted from misappropriating confidential information directly to compete with their employer or to solicit customers or employees to leave the organization.[583] On the same token, while employed, intrapreneurs should not be utilizing the organization's property and time while pursuing

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has commercial value because of its secrecy, and the company or corporation has taken reasonable steps to ensure that the information remains a secret); *see also* Edmund W. Kitch, *The Expansion of Trade Secrecy Protection and the Mobility of Management Employees: A New Problem for Law*, 47 S.C. L. REV. 659, 660 (1996) (arguing that the Restatement's new expansive definition impacts a much larger number of people now).

579. *See* James Bessen, *How Companies Kill Their Employees' Job Searches,* ATLANTIC, (Oct. 17, 2014), https://www.theatlantic.com/business/archive/2014/10/how-companies-kill-their-employees-job-searches/381437/ (last visited Feb. 13, 2019) (reporting overall, enforcement of these non-competes reduces investment into employees) (on file with the Washington and Lee Law Review).

580. *See supra* note 443 and accompanying text.

581. *See, e.g.*, 28 U.S.C. § 1338 (2012) (providing a cause of action for unfair competition).

582. *See* Arnow-Richman, *supra* note 556, at 1207 (arguing that the duty of loyalty is part of the fiduciary duty, and under tort law, stops employee from directly competing or in any way acting against the employer's interest while the employee works for the employer).

583. *See* RESTATEMENT (THIRD) OF AGENCY § 8.05 (AM. LAW INST. 2006) (stating that an employee cannot "use or communicate confidential information" of his employer for the employee's own benefit or purposes or for a third party's benefit or purpose); *see also* Leslie Larkin Cooney, *Employee Fiduciary Duties: One Size Does Not Fit All*, 79 MISS. L.J. 853, 855 (2010) (declaring that if "an employee uses the employer's property or communicates confidential information, the employee violates an agent's duty of loyalty").

independent opportunities.[584] And when leaving the intrapreneurial firm, intrapreneurs' duties prevent them from taking advantage of opportunities they learned about while working at their previous organization.[585]

Moreover, post-employment agreements should not seek to punish the intrapreneur for leaving the firm.[586] They may also not seek to over restrict their mobility for reasons mentioned above.[587] Rather, intrapreneurial firms may limit the use of knowledge employees possess to secure a return on their immense investments in procuring innovation.[588] Legal arrangements should play a key role in upholding an effective balance between the two goals.[589] Courts should prohibit exiting intrapreneurs from misusing intangibles and trade secrets rested in their intellects.[590] Such is the case of military and intelligence personnel who are exposed to sensitive materials and whose mobility is kept through robust legal protection and application of classified information laws.[591] With the appropriate balance of free mobility and

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584. *See* Cooney, *supra* at note 583, at 859 (claiming that the duty of loyalty encompasses activity and conduct of the employee that is inconsistent with his employer's interests and goals).

585. *See* Bishara, *supra* note 549, at 289 (explaining it is common to create contractual duties by agreeing that "they would not use confidential information gained from their employment, or for a limited time, compete against their former employers").

586. *See* Long, *supra* note 490, at 1308 (stating that contractual terms that are "particularly injurious" are more likely to violate public policy and be invalidated by a court).

587. *See id*. (following similar logic, severe restrictions on geographic location may also make the term unenforceable).

588. *See id*. at 1304 (using restrictive covenants to prevent employees from sharing acquired knowledge may protect the company, but they likely reduce the employer's ability to hire employees who value job mobility).

589. *See id*. at 1305 ("[C]ourts use a balancing test whereby the various policy considerations are weighed to determine the outcome best attuned to the interests of the employee, employer, and the general public.").

590. *See id*. at 1303 ("Noncompete advocates also argue that restrictions are necessary to subvert attempts by rogue employees to poach trade secrets and customer lists, which could be used to gain advantage over former employers.").

591. *See, e.g.*, 18 U.S.C. § 798 (2012) (punishing disclosure of classified information); Counterintelligence and Security Enhancements Act of 1994, Pub. Title VIII of P.L. No. 103–359, §§ 801–04, 108 Stat. 3421 (codified at 50 U.S.C. §§

restricted use, firms might begin treating their former employees as alumni and their exit as a revolving door.[592]

Achieving a balance between protecting the interests of both intrapreneurial firms and employees-intrapreneurs will allow the latter to leverage their skills and knowledge in the external labor markets.[593] It will preserve intrapreneurial firms' ability to safeguard their competitive information, to recruit future intrapreneurs, and to train the next generation of entrepreneurs.[594] It will serve the social interests of cross-fertilization and alertness to innovations.[595]

B. Tax Law

In his essay, *The Microtheory of Innovative Entrepreneurship*, Baumol discussed the classical tripartite division of "factors of production"—land, labor, and capital.[596] He added the supply of entrepreneurship and created "a genuine four-group subdivision of the economy's inputs."[597] To amend the effect of market failures of innovation, namely uncertainty and non-rivalry that result in underinvestment in innovation, the government utilizes the tax

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3161–64 (2012) (explaining the procedures for gaining access to classified government information as well as investigations of alleged leaks of classified information). *See generally* JENNIFER K. ELSEA, CONG. RESEARCH SERV., RS21900, THE PROTECTION OF CLASSIFIED INFORMATION: THE LEGAL FRAMEWORK (2017), https://fas.org/sgp/crs/secrecy/RS21900.pdf (summarizing the current laws that form the legal framework protecting classified information).

592. *See* LOBEL, *supra* note 28, at 210 (pointing to the benefits of creating a network of former employees in hiring new employees and learning about new opportunities).

593. *See* Long, *supra* note 490, at 1301 (protecting both sides is necessary because "employers will invest in training only if they recoup that investment by exploiting the skills of those who receive the training" and workers will not sign overly restrictive contracts that may seriously affect their future rights).

594. *See* Bishara, *supra* note 549, at 296 ("Business efficiency and profitability are driven by effective hiring, training, and retention of productive employees.").

595. *See* Ibrahim, *supra* note 35, at 414 (opining that these employment restrictions constitute legitimate employer interests that the law may properly protect).

596. *See* WILLIAM J. BAUMOL, THE MICROTHEORY OF INNOVATIVE ENTREPRENEURSHIP 18 (2010) (explaining these factors of production are distinguished from one another based on their supply conditions).

597. *Id*. at 189.

system by deploying various tax rules and incentives.[598] Each of these institutions operates differently. Yet, the literature exploring these innovation-spending programs has paid little attention as to how to coordinate and harmonize them with innovation.[599] I argue here that tax policies should more accurately match the choice of spending mechanism to the kind of innovation process it seeks to embolden. More specifically, I suggest that tax incentives that aim to bolster entrepreneurship should focus on capital creation, while tax spending on intrapreneurship ought to target labor and human capital.

The process of creating innovation is not homogenous and different actors necessitate diverse treatment. Various agents of innovation unpack innovation in a discrete way, and thus, deserve distinct tax consideration. For example, issues of entity taxation, taxation of labor and capital, and innovation tax incentives should be reconsidered alongside the challenges and boundaries of innovation theory. Applying similar spending programs on dissimilar innovation agents does not necessarily promote the same type of desired outcome.

The literature that discusses the intersection of public spending and innovation has generally focused on the effectiveness (or lack thereof) of tax incentives in reducing or eliminating chronic market failures.[600] And scholars that argued for or against using such indirect spending focused on factors such as administrability, efficiency, and the complexity of such incentives.[601] Others argued

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598. *See* David Hasen, *Taxation and Innovation—A Sectorial Approach*, 2017 U. ILL. L. REV. 1043, 1048 (2017) (stating there is underinvestment in innovation because although "parties value the information and would pay for it if they were compelled, but because they are not compelled, information producers end up undercompensated").

599. *See id.* at 1059 ("[M]ost tax regimes designed to promote innovation needlessly trade off equity and efficiency, and come at the cost of introducing new distortions in other sectors, as rates must be raised there to pay for tax benefits for innovation.").

600. *See id.* at 1045 ("Most of the tax scholarship . . . begins from the . . . proposition that policy-makers ought to use the tax law . . . to ameliorate the problem of information underproduction. Adopting or expanding special tax rules that in some way favor innovation will result in more information production, thereby mitigating the market failure.").

601. *See id.* at 1085 (explaining a wide range of incentives exist from "ex ante

that special tax rules for innovation are inappropriate. Their assumption lays on the notion that tax incentives do not correct externalities, but compensate for them with other mechanisms that create deadweight loss.[602] Lastly, scholars also claimed that the tax system may be inappropriate to administer innovation spending under certain circumstances.[603] Yet, this debate in literature is incomplete. It lacks an understanding of the way public spending correlates to the innovation process. Innovations are not created equally or taxed in the same manner.

To name a few examples, young entrepreneurial ventures do not have much ability to rely on after-tax equity or external debt financing.[604] The risk-smoothing effect of deductible losses is less relevant for these innovation agents with mostly negative net income.[605] They have a lesser ability to reduce taxes on successful projects by utilizing past losses.[606] The R&D tax credit is focused on capital investments, rather than targeting training and development of future entrepreneurs, and claimed mainly by intrapreneurial firms, although in its inception it set to embolden

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incentives [that] include principally government grants and tax deductions or credits, while ex post incentives include principally patents, prizes, and reduced taxes for income from innovative activity").

602. *See id*. at 1089 (proposing that rather than adopting special tax rules policymakers should instead adopt rules that counteract excessively large tax-induced risk taking distortions).

603. *See, e.g*., Jacob Nussim & Anat Sorek, *Theorizing Tax Incentives for Innovation*, 36 VA. TAX REV. 25, 81 (2017) (concluding if the government wants to efficiently incentivize innovation then "cash transfers are generally superior to tax incentives" and they should be administered by a "subject-matter agency" rather than a tax agency); David A. Weisbach, *Tax Expenditures, Principal-Agent Problems, and Redundancy*, 84 WASH. U. L. REV. 1823, 1824 (2006) (explaining the IRS may be the most appropriate administrator to handle "income and in processing paper" but in other areas different specialized agencies may be more efficient and therefore better administrators).

604. *See* Magnus Henrekson & Tino Sanandaji, *Entrepreneurship and the Theory of Taxation,* 37 SMALL BUS. ECON. 167, 168 (2011) (explaining that the options for those starting new businesses are limited because they lack these two options for eliminating taxation costs).

605. *See* Louis Kaplow, *Taxation and Risk Taking: A General Equilibrium Perspective*, 47 NAT'L TAX J. 789, 794 n.6 (1994) ("[E]ntrepreneurs voluntarily bear nonsystematic risk to improve their incentives, the provision of government compulsory partial insurance through taxation would be welfare reducing.").

606. *See* Henrekson, *supra* note 604, at 181 ("Since entrepreneurial investments are discrete in nature, and since entrepreneurs are not able to carry over losses from bad to good investments, a distortion will arise as a result.").

entrepreneurship.[607] Taxation of stock options does not take into account the strong desire of employees-intrapreneurs to become independent entrepreneurs and exit the company.[608] Taxation of intellectual property is relevant generally to intrapreneurial firms that are in a position of ripping profits[609] compared to entrepreneurial agents that are first and foremost occupied with transforming their human capital into such intangible rights.[610] The cost of the capital framework and the principle of neutrality have both been valuable tools for economists and policymakers. Yet, cost of capital formulas have been originally rested on observations of the behavior of large, public firms. Consequently, these formulas have a tendency to underestimate the distortions caused by taxing entrepreneurial agents.[611]

Policymakers endeavoring to create a more accurate allocation of innovation-spending programs first need to inquire about what type of innovation process they seek to embolden.[612] Direct spending granted *ex ante* tend to be more beneficial to funding-constrained entrepreneurial agents.[613] Tax incentive programs that involve complex calculations and planning will

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607. *See* 26 U.S.C. § 41 (2012) (describing the tax credit available for research activities that meet the listed qualifications).

608. *See* Bacharach, *supra* note 553 and accompanying text.

609. *See* Hasen, *supra* note 598, at 1049 (discussing the tax system which allows deductions of costs "if the inventor plans to market the patent in the inventor's own trade or business," favoring larger companies over entrepreneurs who may be forced to license their intellectual property rights and therefore must capitalize the costs).

610. *See* Bishara, *supra* note 549, at 296 (explaining "the value of many of today's companies, particularly high-tech companies and other knowledge-based industries, is tied up in the creative services provided by the human capital of their employees" because they are the innovators who drive intellectual property creation).

611. *See* Hasen, *supra* note 598 and accompanying text.

612. *See* Henrekeson, *supra* note 604, at 176 ("[F]irms and sectors that largely utilize physical capital reap greater benefits from tax code provisions that favor debt financing. This aspect of the tax system favors capital-intensive industries and modes of production over labor and knowledge intensive ones, which works to the detriment of entrepreneurial, often equity-constrained firms.").

613. *See id*. at 168 (stating small and less diversified companies have a harder time reducing tax impact compared to larger public firms).

usually be utilized by more established intrapreneurial agents that benefit from certain economies of experience in tax compliance and administration.[614] In an economy with limited resources, intrapreneurial agents that possess economies of scope, scale, and age are not necessarily in need of high-level innovation tax incentives that aim to boost research and experimentation. Through the potential for supra-competitive premiums that the innovative process offers, they already possess such inherent incentives.

VII. Conclusion

It has been long established that technological innovations enhance productivity and are key drivers of economic growth.[615] Innovations provide a missing link by commercializing discoveries that might otherwise remain dormant and providing opportunities for social mobility.[616] Yet, this Article argued that different innovation agents unpack discoveries in distinct ways. Understating the taxonomy of innovation agencies has implications in broader policy debates in corporate governance,[617] taxation of labor and capital,[618] employment litigation,[619] and so on.

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614. *See id*. at 168 ("[D]ebt financing is less costly and more readily available for larger and more established firms, high statutory tax rates couple with tax-deductible interest payments work to the disadvantage of smaller firms and potential entrepreneurs.").

615. *See* Schumpeter, *supra* note 50, at 260 (criticizing Say's contribution to the theory of entrepreneurship, describing it as "the pithy statement that the entrepreneur's function is to combine the factors of production into a producing organism" where "[s]uch a statement may indeed mean much or little").

616. *See, e.g.*, Ács, Audretsch & Strom, *supra* note 66, at 1; Klepper, *supra* note 404, at 79 (describing successful entrepreneurship as a form of social mobility and increasing standard of living).

617. *See* Ilene Knable Gotts, *The "Innovation Market": Competitive Fact or Regulatory Fantasy?*, 44 PRAC. LAW. 79, 79 (1998) (stating that "[i]nnovation can play an important role in the marketplace by affecting both the pace and extent of new product development").

618. *See* Brett Frischmann, *Innovations and Institutions: Rethinking the Economics of U.S. Science and Technology Policy*, 24 VT. L. REV. 347, 354 (2000) (explaining how the market can be affected or modified by "R&D tax incentives").

619. *See* Viral V. Acharya, Ramin P. Baghai & Krishnamurthy V. Subramanian, *Labor Laws and Innovation*, 56 J.L. & ECON. 997, 997 (2013) (investigating "whether the legal framework governing the relationships between employees and their employers affects the extent of innovation in an

Innovation theory provides various challenges to the boundaries of legal doctrines.

Intrapreneurial enterprises stimulate innovation and have a unique way of inciting market changes.[620] They have considerable resources and funding to invest in innovation and to attract and incentivize employees-intrapreneurs.[621] These innovation agents benefit from economies of experience that enables them to make large investments in knowledge procurement.[622] Yet, competitive pressures from other conglomerates and the will to "stay in the game," motivate intrapreneurial firms to free-ride and poach employees from each other, which increases litigation relating to confidential knowledge and constraints on employee mobility.[623] Maintaining successful private sector innovation necessitates a careful balance between the interests of intrapreneurial organizations, intrapreneurs, and society.[624]

This Article conceptually integrated the idea of "corporate entrepreneurship" with innovation theory and legal doctrines

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economy").

620. *See id*. at 298.

621. *See* Becker et al., *supra* note 49, at 18–19 (noting criticism of the Schumpeterian hypothesis that large firms are more innovative than small firms); *see, e.g.*, William B. Gartner & Nancy M. Carter, *Entrepreneurial Behavior and Firm Organizing Processes*, *in* HANDBOOK OF ENTREPRENEURSHIP RESEARCH 195 (Zoltán J. Ács & David B. Audretsch eds., 2003) ("Entrepreneurial behavior involves the activities of individuals who are associated with creating new organizations rather than the activities of individuals who are involves with maintaining or changing the operations of on-going established organizations.").

622. BAUMOL, *supra* note 32, at 28 (pointing to the benefits of economies of size in commercialization of innovations); *see also* Beth Altringer, *A New Model for Innovation in Big Companies*, HARV. BUS. REV. (Nov. 19, 2013), https://hbr.org/2013/11/a-new-model-for-innovation-in-big-companies (last visited Feb. 13, 2019) (describing how entrepreneurial teams work within big firms to generate and refine new products) (on file with the Washington and Lee Law Review).

623. *See* Bishara, *supra* note 549, at 296 ("Employers are aware that the quality of a business's employees is an inescapable component of a business's success and is worth fighting to protect. Business efficiency and profitability are driven by effective hiring, training, and retention of productive employees.").

624. *See* LOBEL, *supra* note 28, at 77 (explaining British Economist Alfred Marshall's theory that the tendency is for free labor markets to flourish in certain areas and ultimately contribute to knowledge spillover).

relating to human capital. Yet, many related questions remain open. It seems appropriate to conclude this paper by restating some of them. Do courts effectively distinguish between exiting intrapreneurs that in good faith serve the innovation process and those that hamper it? What are the short-term and long-term effects of legal constraints of employees-intrapreneurs on the market? While this paper did not provide definite answers to these questions, it did mark an effort to raise awareness of the issues intrapreneurial firms and employees-intrapreneurs face in the search for opportunities in the innovative process.

Further empirical research and theoretical inquiries are desirable to improve our understanding of strategic behavior of intrapreneurial players.[625] Such efforts could also shed more light on the symmetry–asymmetry of the relationship between the organization, exiting intrapreneurs, and former employees. Finally, intrapreneurship in the pharmaceutical, IT, or service industries are not equal. The conditions under which legal designs affect intrapreneurial firms in different industries need further study. Progress in understanding the process of corporate entrepreneurship may help the development of new legal approaches to facilitate the collaboration between entrepreneurial individuals and the organizations in which they are willing to exert their innovative spirit.

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625. *See* Muhammad Farrukh, Chong Wei Ying & Shaheen Mansori, *Intrapreneurial Behavior: An Empirical Investigation of Personality Traits*, 11 MGMT. & MARKETING: CHALLENGES FOR KNOWLEDGE SOC'Y 597, 609 (2016) (examining some intrapreneurial traits).