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Innovation Agents

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ABSTRACT

The standard narrative of entrepreneurship is 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 this type 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 greenhouse 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.

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INTRODUCTION

If you want to go quickly, go alone. If you want to go far, go together.

—African Proverb

During one Northern California summer day, engineer Anthony Levandowski), decided to create a self-driving car startup.[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. He soon formed Ottomotto ("Otto") and resigned from Waymo without prior notice once

[1] 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).

[2] *Id.* at 6.

Uber executives expressed interest in buying his startup.[3] 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.[4] Waymo discovered a breach in confidential information upon investigating the hasty departure of several of its employees and filed a $1 billion lawsuit seeking injunction against Uber's use of its LiDAR technology.[5]

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. Uber eventually discharged these employees to validate non-use of Google's trade secrets.[6] While it denied using Google's proprietary information in its self-driving technology, Uber apologized for its conduct and settled the suit.[7] It further promised not to use Waymo's technology to develop its driverless cars in the future.[8] Uber CEO Dara Khosrowshahi stated the following when addressing the issue:

> 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.[9]

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 it will be the last, to utilize human capital to its benefit.[10] As more companies realize the importance of

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[3] *Id.* at 47 nn.27-21.

[4] 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.*

[5] *See* Anda Slvestri, *Waymo, Uber Settle Stolen Trade Secrets Lawsuit for $245 Million*, N.Y. D. REP., Feb. 12, 2018 (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…").

[6] 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. Waymo, *supra* note 1, at 42.

[7] Statement by CEO Dara Khosrowshahi, UBER NEWSROOM (Feb. 9, 2018), https://www.uber.com/newsroom/uber-waymo-settlement/ ("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.").

[8] 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 generally* Michelle Birdsall *Google and ITE: The Road Ahead for Self-Driving Cars*, 84 INST. TRANSP. ENGIN. 36, 37 (May 2014) (exemplifying the usage of LiDAR technology in Google's self-driving project).

[9] Khosrowshahi, *supra* note 7. Google's parent company Alphabet sued Uber over stealing trade secrets from its subsidiary company Waymo.

[10] *See* Zenimax Media Inc. v. Oculus VR, Inc., 166 F.Supp. 3d 697 (N.D. Tex, 2015); E.I. Du

technological advancements, their investments in research and development vastly increases.[11] The higher the stakes become, conflicts between competitors trickle down to their employees.[12]

Similarly, a technology company ZeniMax has been working on a joint venture with Oculus to create a virtual reality headset called Oculus Rift. Along with other ZeniMax engineers headed by John Carmack, Oculus and ZaniMax made improvements to the technological capabilities and the design of the virtual reality headset. Oculus showcased the Rift at technology exhibitions where it was and was met with excitement.[13] 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. Shortly afterward Carmack left his position with ZeniMax and was hired as the Chief Technical Officer at Oculus. About six months later, five other senior employees at ZeniMax abruptly resigned and joined Oculus. The following month, Facebook announced that it would purchase Oculus for $2 billion. ZeniMax sued and was awarded a $300,000,000 verdict in damages for infringement of various intellectual property rights.[14]

These latest sagas emphasize a problem that transcends intellectual property litigation. Innovative knowledge is expensive and transitory.[15] Cutting-edge technology companies constantly face substantial risks from former employees.[16] Throughout their 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

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Pont De Nemours and Co. v. Kolon Industries, Inc., 2011 WL 1597528, 1-3 (E.D. Va. 2011) (detailing how former employee of Du Pont was hired by Kolon and subsequently transmitted knowledge of Du Pont products to his new employer).

[11] *See, e.g.,* Internal Revenue Service, Statistics of Income, Figure B: Number of Research Credit Claimants, by Size of Business Receipts for Tax Years 1990–2013, Figure B: Number of Research Credit Claimants, by Size of Business Receipts for Tax Years 1990–2013 (reporting that largest claimints of the R&D tax credit in 2013 were firms with over $250 million in receipts.)

[12] Michael Elkon, *4 Steps to Avoid 'Bet-The-Company' Trade Secret Litigation*, LAW 360, Jun. 5, 2017 (noting that Uber CEO Travis Kalanick described Uber's efforts to develop a driverless car as critical to its very existence.).

[13] Complaint at 16, Zenimax v. Oculus, 166 F. Supp. 3d 697 (No. 3:14CV01849) 2014 WL 2199407, at 16.

[14] Zenimax Media Inc. et al. vs. Oculus VR Inc. et al., 9 Tex. J.V.R.A. 12:6, 2017 WL 4820007 (N.D.Tex.) (Verdict and Settlement Summary).

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

[16] *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 20 boxes of stolen documents from General Motors and Opel); *Ex Employee Pleads Guilty in Taking of Kodak Data*, N.Y. TIMES, Aug. 29, 1997, (describing how employee of 30 years retired from Kodak, started a consulting company, hired 60 former Kodak employees, and began to sell Kodak trade secrets).

industries and greatly promote innovation. For example, while not a party to the Uber-Google litigation, Lior Ron, one of Otto's co-founder, was a former product lead for Google Maps and former product lead for Motorola Mobility (which was later acquired by Google).[17] When asked why he left Google, Ron replied that he "felt an obligation to bring this technology to society sooner rather than later."[18] Ron continues to lead Otto, which developed into a stand-alone company focused on upending the long-distance trucking industry.[19] He recently developed the app Uber-Freight that helps vet and approve truck drivers while providing them with information on nearby available load jobs, calculate distance for the destination, and even receive payment upfront for the drive.[20]

There has been an increase in legal literature regarding who owns human capital that contributes to innovation and growth occurring within an organization.[21] Labor turnover is essentially the process by which employees transmit the abilities and knowledge aggregated throughout their employment to other employers.[22] While these employees possess knowledge in their minds, they may not control the final innovative product developed in the firm.[23] Thus, scholars question whether torts law, intellectual property law, labor law, or antitrust law should encourage greater or lesser employee mobility in the knowledge-based economy.[24] 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.

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[17] Mark Harris, *The Man Who Built Google's First Self-Driving Car Is Now a Trucker*, WIRED (May 17, 2016), https://www.wired.com/2016/05/the-man-who-built-googles-first-self-driving-car-is-now-a-trucker/.

[18] 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/.

[19] Katy Steinmetz, *Why Self-Driving Trucks May Be the Next Big Thing on the Road*, TIME (Sep. 12, 2016), http://time.com/4475620/why-self-driving-trucks-may-be-the-next-big-thing-on-the-road/.

[20] Darrell Etherington, *Uber Freight Lunches 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/.

[21] *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 (2015) (same); Lily Kahng, *Who Owns Human Capital?* 94 WASH. U. L. REV. 607 (2017) (showing how the tax law provides significant subsidies to business owners to "propertize" labor into intellectual capital).

[22] *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).

[23] *See* Lobel, *supra* note 21, at 797-99 (describing an instance where an employee terminated from his company was required by a court to disclose to his former employer an idea he had even where the idea had not been reduced to writing or practice, and only existed in the employee's head).

[24] *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).

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.[25] While much has been written about the entrepreneurial character,[26] and the development and difficulties of entrepreneurship,[27] little has been accounted for its counterpart—intrapreneurial firms.[28]

This Article contributes to the literature by extending the theory of innovation to "Intrapreneurship", namely large, complex, groundbreaking organizations.[29] Also dubbed as "Corporate Entrepreneurship" or "Internal Corporate Venturing" intrapreneurship is the process whereby a group of employees in existing organization instigate renewal or innovation within that organization.[30] Lockheed Advanced Development Projects (also known as "Skunk Works")[31] is an example of a group within an organization given a high degree of autonomy to work on cutting-edge projects.[32] This group was responsible for major innovative aircraft developments such as the Nighthawk, Blackbird, Raptor and the F-35.[33] Intrapreneurial behavior

[25] WILLIAM J. BAUMOL, THE MICROTHEORY OF INNOVATIVE ENTREPRENEURSHIP 27 (2010).

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

[27] *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); David Robinson and & Manju Pur, *Who Are Entrepreneurs and Why Do They Behave That Way?,* http://fmg.lse.ac.uk/upload file/751 Purl Manju.pdf (last visited Feb. 16, 2018).

[28] *See,* Ibrahim, *infra* note 147 at 1742 and Belinfanti, *infra* note 38, at 80.

[29] The term "intrapreneurship" was first coined by economists in the 1980s. *See generally* Norman Macrae, *Intrapreneurial Now*, ECONOMIST, Apr. 1982, at 67, 68 (describing intrapreneurs). 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 also* Joseph Bankman & Ronald J. Gilson, *Why Start-Ups?,* 51 STAN. L. REV. 289, 289-90 (1999) (noting "the prototypical start-up involves an employee leaving her job with an idea").

[30] *See* P. Sherma and J. J. Chrisman, *Toward A Reconciliation of Definitional Issues in the Field of Corporate Entrepreneurship*, 23 Entrep. Th. & Prac. 11, 12 (1999) (discussing corporate venturing); R.D., IRELAND, J.G. COVIN, & D.F KURATKO, *Conceptualizing Corporate Entrepreneurship Strategy,* 33 ENTREP. THEORY & PRAC., 19, 20 (2009) (providing an overview of corporate entrepreneurship).

[31] Lockheed Martin, Skunk Works, https://www.lockheedmartin.com/us/aeronautics/skunkworks/origin.html (last visited Feb. 15, 2018) (The first Skunk Works project was in 1943 when the United States Army's Air 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.).

[32] *Id.*

[33] *See, e.g., Factbox: Lockheed's Skunk Works behind many U.S. military aircraft*, REUTERS (Dec. 10, 2014), https://www.reuters.com/article/us-lockheed-skunkworks-factbox/factbox-lockheeds-skunk-works-behind-many-u-s-military-aircraft-idUSKBN0JO17G20141210 (last visited Feb. 16, 2018).

involves continuous search for new opportunities, creation of innovative knowledge, and regeneration of original products.[34] 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.[35] These conglomerates use their vast market experience, exposure, and resources to develop and deliver new discoveries.[36]

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.[37] 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.[38]

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. As a result, these firms are more likely to develop mechanisms that will cause a lock-in and lock-out effects of human capital. 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 opportunities. Thereafter, Part IV describes legal arrangements that intrapreneurial firms

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[34] JOE J. AMBERG AND SARA L. MCGAUGHEY, FOSTERING LOCAL ENTREPRENEURSHIP IN A MULTINATIONAL ENTERPRISE 2 (2017).

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

[36] *See* Gordon S. Smith & Masako Ueda, *Law & Entrepreneurship: Do Courts Matter?,* 1 ENTREPREN. BUS. L.J. 353, 356 (2006). 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. Khan & Manopichetwattana, *infra* note 145, at 600.

[37] *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) [Hereunder ENTREPRENEURSHIP, GROWTH, AND PUBLIC POLICY].

[38] *See Leaps of Faith*, ECONOMIST, Feb. 18th, 1999 ("most successful innovations are born, bred, and brought to market entirely within well-established organizations, mainly large companies . . . the people who do this are intrapreneurs.) *See also* Tamara C. Belinfanti, *Contemplating the Gap-Filling Role of Social Intrapreneurship,* OR. L. REV. 67, 79 (2015) (intrapreneurship provides incidental benefits to the entire community as a whole, not just the individual firm).

undertake to lock-in employees in the company or out of 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.

I. THE INNOVATION PROCESS

The term "innovation" often denotes novelty, originality, and newness.[39] Joseph Schumpeter, an influential scholar from the Austrian school of economic thought, defined economic development as a dynamic process of change.[40] 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.[41] 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.[42] In 2007, the introduction of the smartphone by Apple radicalized many industries.[43] The iPhone allowed consumers to access the Internet from wherever they were, using a navigation system that was easier to operate than others in the market.[44] The iPhone directly impacted computer sales, as well as traditional landlines companies (effectively eliminating many people's landlines and telephone booths). It also radically transformed the gaming industry with the advent of mobile games and applications.[45]

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 resource together, and monitor the progression of the development process.[46] Once the innovative product

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[39] *See* Sofia Ranchordás, *Does Sharing Mean Caring? Regulating Innovation in the Sharing Economy,* 16 Minn J.L. Sci. & Tech. 413, 427 (2015) (innovation is the ability to take new ideas and translate these original ideas into outcomes using new processes, products or services.) *See also* Dianne Molvig, *The Path to Innovation: It Starts with Pain Points,* Wis. Law., Nov. 2014, at 22, ("innovation is meeting new, unarticulated, or old news in new and novel ways.")

[40] *See* Markus C. Becker, Thorbjorn Knudsen & Richard Swedberg, *Introduction*, to THE ENTREPRENEUR, CLASSIC TEXTS BY JOSEPH A. SCHUMPETER 1, 4 (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).

[41] As opposed to passive adaptive behavior. *See* Joseph A. Schumpeter, *The Theory of Economic Development* (1911), *reprinted in* JOSEPH A. SCHUMPETER, THE ENTREPRENEUR, *in* THE ENTREPRENEUR, CLASSIC TEXTS BY JOSEPH A. SCHUMPETER 153-56 (2011).

[42] *Id.*

[43] Paul Germeraad et. al., *Shifts in Big Oil Patent Landscape: Capturing Value from Intellectual Property for National Transformation,* 52 Les Nouvelles 37, 38 (2017).

[44] *See* Tim Bajarin, *How Apple's iPhone Changed These 5 Major Industries*, TIME (June 26, 2017), http://time.com/4832599/iphone-anniversary-industry-change/

[45] *Id.*

[46] *See* Diana L. Day, *Raising Radicals: Different Processes for Championing Innovative*

is out in the marketplace it may create new market demands by challenging previous popular practices and traditions.[47] 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.[48] This part will outline the 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.[49] These mediators provide mentorship and educational components, access to substantial networking, information, and capital.[50] For example, Y Combinator is an accelerator that helped launch Reddit, Uber, and Airbnb.[51] Similar to other accelerators Y Combinator provides seed investment in startups in exchange for a "promised right to purchase equity in the future."[52] Other than capital, during three months period, in-house managing partners provide guidance to start-ups and arrange weekly networking events to introduce startups to alumni and future investors.[53]

Essential innovations are also generated by government agencies and universities.[54] These innovation agents are instrumental in countering the "knowledge filter."[55] A knowledge filter is defined as the tendency of certain innovation agents to place high screeners and barriers to impede creativity.[56] Innovation agents often decide not to pursue ideas that would ultimately lead to valuable innovations.[57] Some for-profit innovation agents

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Corporate Ventures, 5 ORG. SCI. 148, 149 (1994) (discussing character f intrapreneurs).

[47] JOSEPH A. SCHUMPETER, THE THEORY OF ECONOMIC DEVELOPMENT: AN INQUIRY INTO PROFITS, CAPITAL, CREDIT, INTEREST, AND THE BUSINESS CYCLE 74 (3d ed. 1949).

[48] *Id.*

[49] Accelerators and incubators are often used interchangeably but they are different in some respects. Incubators provide resources 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).

[50] *See* Day, *supra* note 46 155.

[51] *See* Kate Rockwood, *Accelerated Liberties to Handle Its Funding Surge, the ACLU Looks to Silicon Valley,* ABA J., June 2017 at 9.

[52] *See* Dana Brakman Reiser & Steven A. Dean, *Financing the Benefit Corporation*, 40 Seattle U.L. Rev. 793, 816 (2017)

[53] *See* Rockwood *supra* note 51, at n.91.

[54] WILLIAM J. BAUMOL, THE MICROTHEORY OF INNOVATIVE ENTREPRENEURSHIP 27 (2010).

[55] *See* Zoltán J. Ács, David B. Audretsch & Robert J. Strom, *Why Entrepreneurship Matters*, in ZOLTÁN J. ÁCS, DAVID B. AUDRETSCH & ROBERT J. STROM, ENTREPRENEURSHIP, GROWTH, AND PUBLIC POLICY 1 (2006); DAVID B. AUDRETSCH, MAX KEILBACH & ERIK LEHMANM, ENTREPRENEURSHIP AND ECONOMIC GROWTH 1 (2006).

[56] They give various examples such as the copy machine fax machine, personal computer and flat screen. *See* Ács et al, *supra* note 55, at 7 ("all of these ideas were caught in the knowledge filter of an incumbent large corporation").

[57] *Id. See also* CLAYTON M. CHRISTENSEN, THE INNOVATOR'S DILEMMA: WHEN NEW TECHNOLOGIES CAUSE GREAT FIRMS TO FAIL 86 (1997) (contending that established firms are captive to the financial structure and organizational culture inherent in the value network in which they

consider investments in basic research a "wasteful" expenditure, because it carries no guarantee of enhancing the company's earnings. 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. For example, many universities fulfill an important role in developing drugs that treat rare diseases or uncommon conditions. In 1990, three scientists at Emory 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.[58] The scientists, working on a federal grant, had to wait until 2003 until their drug was approved by the FDA. By 2005, Emory had received $540 million for their 20% share in the drug after it was combined with another antiviral formula.[59] This innovative and life changing drug was produced in spite of the required high degree of experimentation and market uncertainty.[60]

By its very nature, basic research generates enormous uncertainty. It is difficult to predict whether and when basic research will yield any financial benefit and, if it does, who will be the final beneficiary.[61] Yet, universities and government agencies are innovation agents that are not guided directly by market forces. In fact, seventy-three percent 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.[62] Only 11% of schools end up making a profit.[63] And yet even operating at a loss most of the time, these public-sector innovation agents are responsible for utmost revolutionary discoveries. In 2006, R&D Magazine found that 55 of the top 88 innovations were the products of publicly funded agents such as U.S. Government laboratories or universities either working alone or in conjunction with private firms.[64] Private firms alone only made 6 out of the 88 innovative products.[65] Nanotechnology has benefitted the most from innovations at universities. In any given field, universities account for roughly 1% of the patents.[66] However, in the field of nanotechnology they account for 12% of the patents, and about 2/3 of the patents for the basic

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compete—a capacity that can block any rationale for timely investment in the next wave of destructive technology).

[58] Clifton Leaf, *The Law of Unintended Consequences,* FORTUNE, Sep. 19, 2005.

[59] *Id.*

[60] *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)

[61] BAUMOL, *supra* note 54, at 34..

[62] *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/.

[63] *Id.*

[64] *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).

[65] *Id.*

[66] *See* Mark A. Lemley, *Patenting Nanotechnology*, 58 STAN. L. REV. 601, 615 (2015) (reviewing the development of the nanotechnology industy).

building blocks of nanotechnology.[67] One reason that might explain this idiosyncrasy is that the nanotechnology industry involving immense investments in capital and labor until commercial application is more certain.[68] 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.[69]

These agents' contributions tend to be rooted in extended periods of fundamental study and discovery.[70] Their lack of profit motive distinguishes them significantly from private-sector agents. Universities and government agencies fill a void and ensure that basic research is undertaken regardless of its duration or ambiguity. 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.[71] Long-term growth and applied innovation depend greatly on advancements made in basic research. 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.[72] He defined the entrepreneur as an "agent who buys means of production at certain prices that are uncertain at the moment."[73] French economist Jean-Baptiste Say portrayed the entrepreneur as an "agent who unites all means of production and who finds the value of products."[74] Today, anyone can be considered an entrepreneur. Undoubtedly, the actions of moral or social,[75] political or regulatory[76] "entrepreneurs" are prevalent in society.[77]

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

[68] Lemley *supra* note 66, at 616.

[69] *Id.*

[70] BAUMOL, *supra* note 54, at 34.

[71] *See* Sen. Birch Bayh and Joseph P. Allen, *School Power: The Case for Keeping Innovation in the Hands of Universities,* THE ATLANTIC, Apr. 11, 2012.

[72] Richard Cantillon, Essai sur la Nature du Commerce en General 388 (Henry Higgs ed. & trans., Frank Cass & Co. Ltd. 1959) (1755).

[73] Joseph A. Schumpeter, *Economic Theory and Entrepreneurial History* (1949), reprinted in ESSAYS ON ENTREPRENEURS, INNOVATIONS, BUSINESS CYCLES, AND THE EVOLUTION OF CAPITALISM 254 (Richard V. Clemence ed., 1989). *See also* JOSEPH A. SCHUMPETER, HISTORY OF ECONOMIC ANALYSIS, 555 (1954).

[74] JEAN-BAPTISTE SAY, CATECHISM OF POLITICAL ECONOMY, 29 (1816).

[75] David E. Pozen, *We are all Entrepreneurs Now*, 43 WAKE FOREST L. REV. 283, 290-91 (2008) ("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. 'Ethnification entrepreneurs,' 'polarization entrepreneurs,' and other newfangled spinoffs pursue more discrete objectives. Entrepreneurial rhetoric has never been so trendy or so

Moral entrepreneurs, as described by Posner, do not base arguments on logic but rather by "mixing self-interest with emotional appeal" to create either a sense of unity or hostility towards another group.[78] 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".[79] Moral entrepreneurship has also been used in the anti-same-sex marriage movement to demonize same gendered marriages and protection laws.[80]

Social entrepreneurship encompasses a "double bottom line" of profit and social goods.[81] Social entrepreneurs create technologies to benefit people and planet. Social entrepreneurship generally has three main components.[82] First, identifying an unjust equilibrium that results in the exclusion, marginalization, or suffering of a group in society lacking financial or political power. Second, finding an opportunity to challenge the status quo. Lastly, creating a new equilibrium that does away with the identified injustice.[83] Social enterprises manufacture products with beneficial environmental or other social impact.[84] They often distribute free products in developing countries or employ workers that traditionally face obstacles to finding employment.[85] Founders of social enterprises hold ownership if the technology in the enterprise turns out to be successful outside of the social goal and have the potential to create substantial profit.[86] 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.[87] The company raised $20 million in equity investment, making it one of the largest, if not the largest investment

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plastic.").

[76] Sharma & Chrisman, *supra* note 30, at 12 ("Entrepreneurship has meant different things to different people."). See also *infra* note 91 and accompanying text.

[77] *See* Pozen, *supra* note 75, at 283. *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".).

[78] *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 the love or hate.")

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

[80] *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.L. REV. 277, 308 (2014).

[81] Dana Brakman Reiser and 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).

[82] *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. at n.28 (2011).

[83] *Id.*

[84] *Id.,* at 1499.

[85] *Id.*

[86] Steven A. Dean and Dana Brakman Reiser, *SE(c)(3): A Catalyst for Social Enterprise Crowdfunding,* 90 IND. L.J. 1091, 1091 (2015) (discussing crowdfunding options for social enterprises).

[87] About Us, HUSK POWER SYSTEMS, http://www.huskpowersystems.com/about-us/.

in the mini-grid sector.[88] Today, the company provides cost-effective power to thousands of rural Indians.[89]

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.[90] 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.[91] Both companies fought a long and hard battle against city councils.[92] 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.[93] Lastly, educational entrepreneurs advocate for change in the educational realm. Today's poster-child for educational entrepreneurs are those advocating for charter schools in replacement of traditional schools.[94]

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.[95] Entrepreneurs go beyond current perceptions and provide legitimacy to the new product.[96] These "economic leaders," as Schumpeter often described them, are avant-garde in that they produce new combinations and creations that confront, and eventually defeat, the existing economic order.[97] Schumpeter's depiction of this economic process originated in the 1920s. Who are those innovation agents in today's economy?

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[88] Esha Chhabra, *How This Social Enterprise Just Closed $20 Million in Funding,* FORBES, Jan. 29, 2018.

[89] Borenstein, David, *A Light in India*, N.Y. TIMES, Jan. 10, 2011.

[90] *See* Dale B. Thompson, *Political Obstacles to the Implementation of Emissions Markets: Lessons from Reclaim*, 40 Nat. Resources J. 645, 649 (2000).

[91] *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 change the regulatory environment).

[92] *Id.*

[93] *See* Joseph D. Bryan, *Birmingham vs. Uber: Council president still open to talking to company after passing new rules Uber calls unfair,* THE BIRMINGHAM NEWS (July 29, 2014), http://www.al.com/news/birmingham/index.ssf/2014/07/birmingham_vs_uber_council_pre.html

[94] *See* David Groshoff, *Unchartered Territory: Market Competition's Constitutional Collision with Entrepreneurial Sex-Segregated Charter Schools,* 2010 B.Y.U. Educ. & L.J. 307, 312 (2010) (Since 1995, educational entrepreneurs have successfully created over 3,000 charter schools).

[95] Schumpeter, *supra* note 41, at 262 (noting the effect of entrepreneurial activity upon the industrial structure is the consequent process of reoccurring destruction and reconstruction). *See also* Amir Licht, *The Entrepreneurial Spirit and What the Law Can Do About It*, 28 COMP. LAB. L. & POL'Y J. 817, 822 (2007) (describing the circular flow of economic life as though the economy never reaches an equilibrium but rather shifts from one disequilibrium to another).

[96] *See* Manuel A. Utset, *Reciprocal Fairness, Strategic Behavior & Venture Survival: A Theory of Venture Capital-Financed Firms*, 2002 WIS. L. REV. 45, 101 (2002) (noting entrepreneurs' perception is unique).

[97] SCHUMPETER, *supra* note 47.

Today, entrepreneurship involves the creative reading of the present and the imaginative prediction of the future.[98] Apple engineers were able to do just that with the first model of the iPhone.[99] Apple CEO Steve Jobs realized the desire of consumers to have a portable device that could do more than text or check e-mail. He saw that technology was developing to allow more processing power in tinier packages.[100] Leading Apple at that time, Jobs revolutionized the way the world thinks about phones and portability, and predicted the way the world would soon become.[101]

Entrepreneurship prospers on such deviations as opposed to traditional causation and it involves adapting to disarray.[102] Accordingly, certain characteristics, such as creativity, risk-taking, independence, confidence, and resilience, may be common among entrepreneurs.[103] Many factors, including independence, and flexibility have been found to affect entrepreneurial decisions to take risks and be innovative.[104] Yet, there is no consensus on the qualities that are inherent to the entrepreneurial persona.[105]

Nevertheless, this paper theorizes the entrepreneurial phenomenon as a *process* (rather than a trait) that contributes to economic development.[106] 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.[107] Nanotechnology discussed earlier, is an example to such process.[108] Public-sector innovation agents usually begin the process

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[98] *See, e.g.,* YOCHAI BENKLER, THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM 133-135 (2006); 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).

[99] 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 (Jun. 26, 2007), http://mossblog.allthingsd.com/20070626/jobs-qa.

[100] *See* Press Release, Apple, Apple Reinvents the Phone with iPhone (Jan. 9, 2007), http://www.apple.com/pr/library/2007/01/09Apple-Reinvents-the-Phone-with-iPhone.html [http://perma.cc/L937-DHP4]; *see also* Steve Jobs, iPhone Introduction in 2007, YouTube (Jan. 10, 2014), http://www.youtube.com/watch?v=9hUIxyE2Ns8.

[101] 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 industries with touch screen.)

[102] Licht, *supra* note 9595, at 819 ("…beyond 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."); Knight, infra note 122, at 269 (holding that entrepreneurs differ their degree of confidence).

[103] *See, e.g.*, Licht, *supra* note 95 at 832 ("Entrepreneurs are indeed special individuals in that they tend to exhibit a particular combination of psychological attributes…"). Schumpeter also emphasized individual-level psychological factors. *See* Becker, *supra* note 40, at 16.

[104] Licht, *supra* note 95, at 823 (". . . people differ in the qualities necessary to engage in entrepreneurship. Relative to the average person, the entrepreneur is therefore particularly 'venturesome'. . ."). *See also* Robert H. Brockhaus, *Risk Taking Propensity of Entrepreneurs*, 23 ACAD. OF MANAG. J., 509 (1980).

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

[106] Smith & Ueda, *supra* note 36, at 357 (calling for a focus on the study of the optimal legal structures that facilitate the commercialization of entrepreneurial opportunities).

[107] SCHUMPETER, *supra* note 47, at 50.

[108] Lemley, *supra* note 66.

by exploring the basic building blocks of the technology.[109] They are able to sustain large economic losses because of their non-profit nature. Once the building blocks are established, private entities can work with universities or license the patents to use in their own products.[110] 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.[111]

Entrepreneurs are a destabilizing force and principle agents of change in an economy.[112] 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. Their creations confront, and eventually defeat, the existing economic order.[113] 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.[114] His obsessive search for the next innovation or the next tweak that would finally perfect a product (though it never did fully enough for Jobs) drove him to change and reinvent the computer and phone industries, and the way we interact with the world entirely.[115] He insisted that all Apple products have a closed back to prevent any interference with the inner workings, 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.[116] Bill Gates is the great foil to Jobs's character. 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.[117]

In this Article, entrepreneurship refers to the actions of for-profit firms or individuals that are innovative, rather than imitative, and likely to create products with new market demand and contribute to economic growth. Economist Zoltan Ács differentiated between necessity entrepreneurship and opportunity entrepreneurship.[118] He found that the former arises owing to a lack of other employment options, while the later results from the deliberate choice to pursue an unexploited or underexploited business

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[109] *Id.* at 616.

[110] *Id.*

[111] Lemley, *supra* note 67, at 614.

[112] *Id.* at 262 ("What we observe is . . . the effects of entrepreneurial activity upon the industrial structure that exits at any moment . . .").

[113] *Id.*

[114] Malcolm Gladwell, *The Tweaker*, THE NEW YORKER (Nov. 14, 2011, https://www.newyorker.com/magazine/2011/11/14/the-tweaker.

[115] *Id.*

[116] Interview with Walter Isaacson, *'Steve Jobs': Profiling An Ingenious Perfectionist*, NATIONAL PUBLIC RADIO (Nov. 11, 2011), available at https://www.npr.org/2011/11/11/142244048/steve-jobs-profiling-an-ingenious-perfectionist.

[117] Nick Wingfield, *Pamela Edstrom, who helped shape Microsoft's Public Image, dies at 71,* THE N.Y. TIMES, Mar. 31, 2017.

[118] Zoltán J. Ács, *How is Entrepreneurship Good for Economic Growth?*, 1 INNOVATIONS 97, 98 (2006).

opportunity.[119] He further articulated that necessity entrepreneurship causes negative GDP growth, while opportunity entrepreneurship has a positive and significant effect on social and economic development.[120] For example, in 2012, the start-up company ReWalk successfully developed a battery-powered exoskeleton device that allows paralyzed individuals to walk upright.[121] The next section clarifies the importance of such innovation agents in society.

3. The Significance of Entrepreneurs

What is it about the entrepreneurs that merits distinct consideration? Simply put, as agents of innovation, entrepreneurs are instrumental in driving economic development.[122] They destroy the basis of the old economy and pave the way to a new economic order of prosperity and welfare through their innovations.[123] Take, for example, WeWork, a recent start-up that rents out shared workspaces and "community-building programming."[124] Its core concept is that traditional cubicle-like office setting does not contribute to workplace productivity and happiness. And reporters claim it is on to something.[125] WeWork provides businesses a variety of options to rent relaxed office spaces, as an office, a suite, an entire HQ, or just a desk in a common area.[126] It creates environments that increase productivity, innovation, and collaboration via community managers, professional and social events, and cocktail hours.[127] It also provides valuable networking opportunities among individual workers and across company lines, creating new opportunities within their innovative spaces.[128] This company not only revolutionized the commercial real-estate industry but also host innovations in its space.

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[119] *Id.*

[120] *Id.* at 99.

[121] Llya Pozin, *10 Health Tech Companies Changing the World*, FORBES, Jun. 1, 2014; see also Heather Kelly, *Young Companies, Big Ideas*, CNN (Oct. 2015) ,https://www.cnn.com/interactive/2014/10/tech/cnn10-startups/ (detailing upcoming startups, such as Airwave which develops software and application for drones).

[122] *See, e.g.*, PETER F. DRUCKER, INNOVATION AND ENTREPRENEURSHIP: PRACTICE AND PRINCIPLES 21 (1985); SCHUMPETER, *supra* note 47 (referring to entrepreneurship as the "fundamental phenomenon of economic development."); 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 entrepreneur plays a unique importance in a productive economy); PAUL GOMPERS & JOSH LERNER, FINANCIAL CONTRACT DESIGN IN THE WORLD OF VENTURE CAPITAL, THE VENTURE CAPITAL CYCLE 10 (1999) (examining empirically the various aspects of economic contribution of venture capital).

[123] *Id.*

[124] Laura Bliss, *How WeWork has Perfectly Captured the Millennial Id,* THE ATLANTIC, Mar. 2018, https://www.theatlantic.com/magazine/archive/2018/03/wework-the-perfect-manifestation-of-the-millennial-id/550922/./

[125] *Id.*

[126] *Id.*

[127] WeWork, Plans and Pricing, https://www.wework.com/plans.

[128] *Id.*

Contemporary economic theorist William Baumol[129] emphasized the importance of entrepreneurs in stimulating economic growth.[130] He argued that economic evolution is dependent on two determinants—namely, innovation and entrepreneurs. Baumol argued that entrepreneurs are responsible for revolutionary breakthroughs.[131] He attributed the success of the capitalist economy primarily to competitive pressures by players deploying innovation as their primary weapon.[132] Today, cutting-edge innovation, rather than pricing, is the key to economic success.[133] Facebook is a free social networking site and yet its founder Mark Zuckerberg's equity is worth around $73 billion.[134] Facebook completely changed the way humans interact and, as of May 3, 2017, has almost 2 billion monthly users.[135] Rapid diffusion of such innovation throughout the economy ultimately results in economic growth.[136]

Other scholars also view entrepreneurs as important agents that stimulate an economy.[137] American economist and Nobel laureate Robert Solow acknowledged that long-term economic growth has moved to the top of the political and intellectual agenda.[138] He established the primacy of innovations as responsible for economic growth through increases in productivity. Joseph Stiglitz also emphasized the central role of entrepreneurs in driving technological progress and economic development.[139] They all postulated that entrepreneurial change is a core variable of economic growth driven by the introduction of innovation by

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[129] WILLIAM BAUMOL, THE FREE MARKET INNOVATION MACHINE: ANALYZING THE GROWTH MIRACLE OF CAPITALISM 10 (2002).

[130] *Id.* at ch. 1 ("[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.").

[131] *Id.* at 30-31 (listing important innovations by U.S. small firms in the Twentieth century).

[132] *Id.* at ch. 1.

[133] *Id.* at 26 ("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.").

[134] 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/.

[135] 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.

[136] Baumol points 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 129, at ch. 1.

[137] *See e.g.,* Edwin Harwood, *The Sociology of Entrepreneurship*, *in* ENCYCLOPEDIA OF ENTREPRENEURSHIP (C.A. Kent, D.L. Sexton & K.H. Vesper eds., 1982) ("It is innovation that determines the distinction between a run-of-the-mill small business and a high-potential venture."); Licht, *supra* note 95, at n.9.

[138] *See* Robert Solow, *Review of Prophet of Innovation: Joseph Schumpeter and Creative Destruction, by Thomas K. McCraw*, THE ECONOMIST'S VIEW, http://economistsview.typepad.com/economistsview/2007/05/robert_solow_on.html.

[139] *See generally,* NEW DEVELOPMENTS IN THE ANALYSIS OF MARKET STRUCTURE 519 (J. Stiglitz & G. Mathewson eds., 1986) (This book contains sixteen essays that test economic development hypotheses.).

entrepreneurs.[140] Entrepreneurs contribute to economic growth by creating new businesses and jobs, intensifying competition, and increasing productivity.[141] Sidecar was a startup founded in 2011 and was the original ridesharing company.[142] 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. It forced competition between ride-sharing companies, filling a niche that inadequate public transportation and taxi companies had been unable to fill.[143] To summarize, entrepreneurial firms are important drivers of new discoveries and economic growth.[144] 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.[145]

II. INTRAPRENEURSHIP

The last few decades have witnessed a growing interest in legal scholarship on the topic of entrepreneurship.[146] Nevertheless, its companion—intrapreneurship—has garnered less attention.[147] In the past, most entrepreneurs were self-employed or worked in independently owned firms.[148] 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.

Entrepreneurial firms and large conglomerates have often been viewed as antipoles. While the former has been portrayed as young, creative, and flexible firms,[149] the latter symbolized corporations with much bureaucracy,

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[140] *See* Horst Hanusch & Andreas Pyka, *Principles of Neo-Schumpeterian Economics*, 31 CAMB. J. ECON. 275, 275 (2007); Paul M. Romer, *The Origins of Endogenous Growth*, 8 J. ECON. PERSP. 3 (1994) (offering an assessment of scale-variant Schumpeterian growth model).

[141] *See* CHRISTENSEN, *supra* note 57, at 86 (contending that established firms are captive to their financial structure and culture).

[142] Douglas MacMillan, *Sidecar Technologies Shuts Rid-Sharing and Delivery service*, WALL ST. J., Dec. 29, 2015.

[143] *Id.*

[144] John Haltiwanger, *Entrepreneurship and Job Growth*, *in* ENTREPRENEURSHIP, GROWTH, AND PUBLIC POLICY, *supra* note 37, at 119.

[145] *See generally* Christensen, *supra* note 57, at 305 (describing the phenomenon of intrapreneurship in a large knowledge-intensive industrial firm). *See also*, Smith & Ueda, *supra* note 36, at 356; Arshad M. Khan & V. Manopichetwattana, *Innovative and Noninnovative Small Firms: Types and Characteristics*, 35 MGMT. SCI. 597, 599 (1989).

[146] *See supra* notes 30, 40, & 149 and accompanying text.

[147] *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* Darian M. Ibrahim, *Intrapreneurship,* 73 WASH. & LEE L. REV. 1741 (2016) ("…[intrapreneurship] is substantial, important, and understudied."). *See also* Smith & Ueda, *supra* note 36, 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).

[148] BLACKFORD, A HISTORY OF SMALL BUSINESS IN AMERICA, at 104.

[149] *See* Wendy Guillies, Kauffman Foundation 2015 State of Entrepreneurship Address, http://www.kauffman.org/~/media/kauffman_org/resources/2015/soe/2015_state_of_entrepreneurshi

hierarchy, and stagnation.[150] 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 want to remain viable they must engage in a degree of entrepreneurial activity.[151] Sooner or later, firms like Apple and IBMs had to find and exploit other related opportunities through internal corporate venturing or acquisition of related innovative prototypes they can develop and market as their own.[152] 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.[153]

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 startups in order to develop and deliver them to the market.[154] Doing so, they have served as an exit hub for private entrepreneurship.[155] Second, these organizations began to cultivate corporate entrepreneurship or internal corporate venturing. The latter refers to the process whereby firms engage in diversification of its strategic operations through internal development. Internal entrepreneurship became an important tool for firms to remain viable and competitive, whether during prosper or turbulent economic times.[156] Indeed, studies have shown that innovation can also be fostered successfully through a process of intrapreneurship in divisions or employees within established firms.[157]

Schumpeter viewed the entrepreneur as one who "carries out new combinations."[158] Similarly, large, complex organizations take actions that result in new combinations of resources being carried out.[159] In the

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p_speech.pdf (In her speech the Acting President and CEO of the Ewing Marion Kauffman Foundation describes those firms.).

[150] *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 MANAG. SCI. 708, 709 (1994) (examining scale diseconomies and offering employment contracts as an explanation for diseconomies of scale in R&D).

[151] Burgelman, *supra* note 35, at 1363 (1983).

[152] Robert A. Burgelman, *Designs for Corporate Entrepreneurship in Established Firms,* 26 CA. MANAG. REV. 154 (1984).

[153] BAUMOL, *supra* note 54, at 26.

[154] *See infra* part IV.B.

[155] *See* Michael J. de la Merced, Nick Bilton, & Nicole Perlroth, *Yahoo to Buy Tumblr for $1.1 Billion,* N.Y. TIMES, May 19, 2013 (reporting that Facebook bought the start-up photo sharing company Instagram for $1 billion. Yahoo, in 2013 acquired the popular blogging and social-media site for $1.1 billion. Both were done in an attempt to expand on already their established markets)

[156] *Id.*

[157] *See generally* Christensen, *supra* note 33, at 305 (describing the phenomenon of intrapreneurship in a large knowledge-intensive industrial firm). *See also*, Smith & Ueda, *supra* note 36, at 356; Khan & Manopichetwattanasupra note 145, at 599.

[158] JOSEPH A. SCHUMPETER, THE THEORY OF ECONOMIC DEVELOPMENT 10 (1934).

[159] R. R. Ellsworth, *Entrepreneurship in Big Business: The Impossible Dream?* in ENTREPRENEURSHIP: WHAT IT IS AND HOW TO TEACH IT 282 (John J. Kao and Howard H. Stevenson eds. 1985).

Schumpeterian sense, intrapreneurship is analogous to the process of individual entrepreneurship performed in the corporate entity by interlocking entrepreneurial activities of multiple participants.[160] Such internal development requires new resource combinations to extend the firm's activities in related areas and opportunities. Apple's expansion from iPhones to the creation of the iPad in 2010 and iWatch in 2013 exemplifies this.[161] While the majority of Apple's profits derive from sales of iPhone, its related products contributed to Apple's dominance in the market. Its Revenues multiplied from $65.2 billion in 2010, to $108.2 billion in 2011, to $182.8 in 2014, to $229.23 billion in 2017.[162] Intrapreneurship, therefore, extends "the firm's domain of competence and corresponding opportunity set through internally generated new resource combinations."[163] The following will describe the facets of this process.

A. Internal Corporate Venturing

Intrapreneurship can occur in many ways.[164] Some scholars view it as simply internal new business development in existing corporations.[165] Others consider it as strategic renewal that involves the internal creation of new combinations of resources.[166] It often includes developing innovation that requires significant company resources beyond the year in which the expenditure is made.[167] Yet, what is *not* considered within the definition of the term are usually extensions of the firms' existing products or services.[168]

Internal corporate venturing can deliver innovations through various channels. It includes but in not limited to new product departments, special business units, micro new internal ventures, new venture divisions,

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[160] Burgelman, *supra* note 35, at 1349 (1983).

[161] *See* Andrew Clark, *Rupert Murdoch Says Apple's iPad is a "Game-Changer' for News Media,* GUARDIAN, Aug. 5, 2010, at 27. *Apple Trademark Application Faces Challenges In Russia*, LAW 360, Jan. 24, 2014 (reporting that in 2013, Apple filed an application for a patent for a multifunctional mobile device, which the user can wear as a wristwatch.)

[162] Global revenue of Apple from 2004 to 2017 (in billion U.S. dollars), Statista, https://www.statista.com/statistics/265125/total-net-sales-of-apple-since-2004/.

[163] Burgelman, *supra* note 152, at 154.

[164] 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 and Stephen M. Shortell, *New Organizational Forms for Enhancing Innovation: The Case of Internal Corporate Joint Ventures*, 17 MANAG. SCI. 170, 171 (1991) ("ICJV involves the creation of an internally-staffed venture unit that is semiautonomous with the sponsoring organization maintaining ultimate authority.").

[165] *See* Stephen Edward McMillan et al. *Millenials and Social Entrepreneurship: A Multiple Stream Analysis of Problems, Prospects, and Implications for Policy and Practice,* 21 GEO. PUB. POL'Y 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 36, at 357.

[166] *See* William D. Guth and Ari Ginsberg, *Guest Editors' Introduction: Corporate Entrepreneurship*, 11 STRAT. MANAG. J. 5, 6 (1990).

[167] Ronald J. Gilson, *Locating Innovation: The Endogeneity of Technology, Organizational Structure, and Financial Contracting,* 110 COLUM. L. REV. 885, 904 (2010).

[168] Day, *supra* note 46, at 156.

independent subsidiaries, and others.[169] 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.[170] Lockheed Martin, Inc. has created a group known as 'Skunk Work" where members of its group operate as their own division and given complete freedom to develop innovative ideas.[171]

Successful intrapreneurship was found to depend on factors such as the availability of independent entrepreneurial activity at the operational level,[172] 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.[173] Some firms treat intrapreneurship simply as a "safety valve" or "insurance".[174] They utilize it when the organization is not doing very well or in need of extreme measures to reverse a continuous decline in sales and profits.[175] Scholars noted that this type of approach is not productive in the long run, and does not contribute to the development of the firm.[176] Successful Intrapreneurial firms typically follow a "moving, anchored search" for new opportunities for growth and tend to invest greatly in R&D.[177] In order to cultivate successful internal venturing, intrapreneurial firms need to encompass both flexibility and structure.[178] An effective combination of these antonyms requires experimentation and adjustment.[179]

Studies found that successful intrapreneurship requires new managerial approaches and innovative administrative methods from top management as

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[169] Burgelman, *supra* note 152, at 163.

[170] *If you can't beat them, buy them*, THE ECONOMIST, Nov. 20, 2014.

[171] *See* Belinfanti, *supra* note 38 (explaining the benefits of such venture).

[172] *See* MALCOLM S. SALTER, AND WEINHOLD A. WOLF, DIVERSIFICATION THROUGH ACQUISITION 5 (1979).

[173] Robert A. Burgelman, *supra* note 147, at 223 (reaching these conclusion 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 MANAG. 163, 163 (1977) (conducting a study on ICV up to the commercialization phase without distinguishing between new product and new business development (von Hippel, 1977).

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

[175] Ibrahim, *supra* note 147, 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.)

[176] Burgelman, *supra* note 35, at 1361.

[177] *See* Gaurab Bhardwaj, John C. Camillus, David A. Hounshell, *Continual Corporate Entrepreneurial Search for Long-Term Growth*, 52 MANAG. SCI. 248, 251 (2006) (Using DuPont's decision-making documents from 1902 to 1921, the authors developed process theory explanations for continual corporate entrepreneurial search for long-term growth).

[178] *See* Burgelman, *supra* note 35, at 1349 (1983) (similarly discussing the need for diversity and order for successful internal corporate venturing).

[179] *Id.*

well.[180] Thus, middle level managers play a crucial role in the innovation process in intrapreneurial firms. They support autonomous strategic initiatives by employees-intrapreneurs, combine them with firm's capabilities and pitch them to top management. Management's critical contribution is in recognizing opportunities for change and allowing intrapreneurs to redefine the organizational strategic context.[181] 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.[182] 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.[183]

Intrapreneurial enterprises sustain themselves by making sure they spend as much on innovation as their competitors do. They compete in a race over who gets access to breakthroughs first. Since these conglomerates constantly compete over R&D efforts, they dare not unwind their investments in innovation.[184] Apple, Amazon, and Google are perhaps today's biggest rivals. They are both large conglomerates and in some ways arch enemies when it comes to innovative new products and services. In 2016, Apple spent $10.39 billion on R&D, the most it had ever spent in one year at that point.[185] It however still trailed behind Amazon and Google who are the biggest spenders on R&D.[186] Overall, society benefits from this type of rivalry, as it guarantees a constant flow of innovations.[187]

Quick product lifecycles result in restrained ability of the firm to recoup R&D investments.[188] Therefore, intrapreneurial enterprises often focus on predictable success by implementing categorical discoveries with proven commercial potential.[189] The yogurt company Danone developed in 2006 an enriched yogurt version with essential nutrients known as Grameen Danone, a twist on their already existing products.[190] Dannon then partnered

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[180] *Id.* (noting top management should control the level and the rate of change rather than the specific content of entrepreneurial activity).

[181] *Id.* at 1350.

[182] Ibrahim, *supra* note 147, at 1755.

[183] *Id.*

[184] *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.")

[185] Kif Leswig, *Apple is spending billions on secret R&D projects-and it keeps spending more,* THE BUSINESS INSIDER (Feb. 1 2017), http://www.businessinsider.com/apple-rd-spend-charts-2017-2

[186] Justin Fox, *The Big Spenders on R&D,* BLOOMBERG (Apr. 29, 2016), https://www.bloomberg.com/view/articles/2016-04-29/amazon-and-facebook-are-big-spenders-on-r-d.

[187] BAUMOL, *supra* note 54, at 28.

[188] Gilson, *supra* note 167, at 904.

[189] Dr. Ad Huijser, executive vice president and chief technology officer, Royal Phillips Electronics (Tilburg, the Netherlands, September 2003) cited in WILLIAM J. BAUMOL, THE MICROTHEORY OF INNOVATIVE ENTREPRENEURSHIP 25 (2010).

[190] Belinfanti, *supra* note at 38.

with the Bangladeshi government to deliver the product cheaply to its population to help with the malnourishment problem.[191] Through this innovation, they were able to leverage their success and create their renowned Activia yogurt. Without the work on the yogurt for Bangladesh, Danone executives admit they probably would never have come up with Activia and prevail in their market.[192]

Intrapreneurial firms also pursue innovations by making incremental improvements and adding product features that enhance its functionality and accessibility.[193] These improvements may be more significant than a revolutionary prototype discovery to end users at times. Every incremental development may seem insignificant on its own, but when added together, these developments turn out to be quite remarkable. For example, the first Intel processor was slow, bulky, and clumsy, but incremental upgrades over the years made it speedy, small, and powerful.[194] 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.[195] True, the initial invention, led by entrepreneur Adam Osborne, was necessary to ignite Intel's later upgrades.[196] Yet, it was the combination of both entrepreneurial and intrapreneurial agents that made effective portable computer available to us all.

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. [197] The operation economies of scale, age, and scope in mass production and distribution work to their benefit.[198] Before its launch, Apple spent over $150 million on the first prototype of the iPhone, with the project taking almost three years. Their large team of intrapreneurs worked seven days a week, and Jobs himself working over 80 hours a week.[199] In the first ten years since the iPhone inception, Apple has sold 1.2 billion devices with an estimated $100 billion dollars of profit for the company.[200] In addition, Apple's large output and vast experience has allowed Apple to reduce the average unit cost.[201]

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[191] *Id.*

[192] *Id.*

[193] Gladwell, s*upra* note 114.

[194] BAUMOL, *supra* note 54, at 32.

[195] *Id.*, at 33.

[196] Matt Rosoff, *The Rise and Fall of The Man Who Invented the Portable Computer* BUS. INSIDER, Apr. 1, 2011.

[197] BAUMOL, *supra* note 54, at 28.

[198] 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).

[199] Fred Vogelstein, *And then Steve said, "Let there be an iPhone,"* N.Y. TIMES, Oct. 4, 2013.

[200] Ian Morris, *Apple has sold 1.2 billion iPhones worth $738 Billion in 10 years*, FORBES, Jun. 29, 2017.

[201] GEORGE J. STIGLER, THE ORGANIZATION OF INDUSTRY 71 (1968). 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. From this point and on larger entities produce goods and services

Through the operation of the law of large numbers, economies of scale reduce the average unit cost as the scale of output increases.[202] Indeed, Schumpeter recognized technological innovation as a scale-intensive activity positively related to organizational size.[203]

Economies of age are also beneficial in providing intrapreneurial firms with insight, both as players *within* the marketplace, and *of* the marketplace environment.[204] The older the enterprise, the more time its decision-makers have had to become informed about the marketplace and become acquainted with the landscape. Bill Hewlett and Dave Packard founded HP in 1939 by selling audio oscillators from a car garage.[205] Today, the company's products include an extensive range of IT products such as hardware and software services. International Business Machines Corporation ("IBM") was founded in 1911 and initially focused on producing computing scale machines and time-clocks. Nowadays, it is the world leader in computer hardware, middleware and software, and also provides hosting and consulting services.[206] Information about the structure, composition, rules, politics, state of competition, and possible failures are examples of such beneficial knowledge.[207] 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. This, in turn, lowers the present value of their future profits.[208]

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.[209] Expertise and specialized knowledge constitute the essence of economies of scope.[210] 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.[211] For example, Apple may use existing knowledge, expertise, and equipment

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at increased cost-per-unit. Some reasons that attribute to this phenomenon can be traced to increasing bureaucracy, duplication of efforts, office politics, etc.

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

[203] JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM, AND DEMOCRACY 5 (1942).

[204] Eyal-Cohen, *supra* note 198, at 10.

[205] HP: Making it Matter, *Company Profile*, SUCCESSSTORY, https://successstory.com/companies/hewlett-packard.

[206] *IBM Buys Merge Healthcare to Boost Watson Health Cloud*, BLOOMBERG MARKETS, (Aug. 6, 2015), https://www.bloomberg.com/news/videos/2015-08-06/ibm-buys-merge-healthcare-to-boost-watson-health-cloud.

[207] Eyal-Cohen, *supra* note 198, at 15.

[208] *Id.*

[209] *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).

[210] Eyal-Cohen, *supra* note 198, at 15.

[211] 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).

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.

Individual-entrepreneurs perform a critical role in uncovering opportunities and knowledge that would otherwise remain hidden.[212] However, they may not have what it takes to effectively execute their discoveries in the marketplace.[213] Entrepreneurs lack economies of experience (size, scope, and age) that help defray various costs.[214] 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. Walmart purchased the e-commerce start-up Jet.com, an e-commerce company that developed a real-time pricing algorithm that prices goods based on their locations in distribution centers.[215] General Electric agreed to buy ServiceMax, a software program that provides information about off-site workers and equipment repairs.[216] Entrepreneurs desire both capital and ways to develop and distribute their innovation quickly. Time is of the essence.[217] They know competitors will attempt to duplicate discoveries as soon as the knowledge is made accessible.[218] 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.[219] 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.[220]

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.[221] This

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[212] BAUMOL, *supra* note 54, at 26.

[213] *Id.* ("[F]or example, large firms like Boeing, which took on the task of improving the Wright brothers' invention.").

[214] *See* Eyal-Cohen, *supra* note 198, at 16.

[215] 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/.

[216] Leslie Pickerjan, *For Non-Tech Companies, if You Can't Build It, Buy a Start-Up*, N.Y. TIMES, Jan. 2, 2017.

[217] Eyal-Cohen, *supra* note 17, at 981.

[218] *Id.*

[219] HAY, D. A. AND D. J. MORRIS, INDUSTRIAL ECONOMICS: THEORY AND EVIDENCE 10 (1979).

[220] *See* Cohen, W. M. and R. C. Levin, *Empirical Studies of Innovation and Market Structure*, in HANDBOOK OF INDUSTRIAL ORGANIZATION vol. II (R. Schmalensee and R. D. Willig Eds. 1989) (claiming that certain nonmanufacturing activities may be better developed within large firms).

[221] S*ee, e.g.,* Jesper B. Sørensen & Toby E. Stuart, *Aging, Obsolescence, and Organizational Innovation*, 45 ADMIN. SCI. Q. 81 (2000) (finding that firm's age is associated with increases in firms'

phenomenon is referred to as diseconomies of experience, and it can occur for a variety of reasons.[222] For instance, established firms may suffer from duplication of efforts and office politics.[223] Firm bureaucracy and lower-level organizational inertia often directly correlates to firm size and can undermine innovativeness.[224] Other factors such as increased bureaucratic processes, multi-level administrative procedures, controlling management, and adherence to traditions can also hinder innovation in established firms.[225] The arc of Kodak's rise and fall in the camera industry is illustrative. For much of the 20th century Kodak was the leading innovator in cameras and film, pioneering push-and-shoot cameras, and Kodachrome film.[226] Its technological breakthroughs resulted in a 90% market share of the photographic film industry, and an 86% market share in the camera industry.[227] Steve Sasson, an engineer for Kodak created the first digital camera in 1975.[228] 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.[229] Despite the technological head start, when digital cameras became prevalent in the 1990's and 2000's, Kodak found itself trailing after its competitors in market share.[230] By 2012, Kodak was preparing for bankruptcy.[231] Therefore, economies of experience can both boost or impede the ability of established conglomerates to take risks and deliver innovations to the market.

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rates of innovation but also that the difficulties of keeping pace with external developments).

[222] Eyal-Cohen, *supra* note 198, at 20.

[223] *See* Hambrick, D. C. and I. C. MacMillan, *Efficiency of Product R&D in Business Units: The Role of Strategic Context,* 28 ACAD. OF MANAG. J. 527, 528 (1985) (noting medium-sized firms have lower negative effects of firm bureaucracy).

[224] M. L. Tushman, M. L. and E. Romanelli, *Organizational Evolution: A Metamorphosis Model of Convergence and Reorientation,* in RESEARCH IN ORGANIZATIONAL BEHAVIOR, 179 (B. Staw and L. Cummings Eds., 1985).

[225] *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).

[226] David Usborne, *The Moment it All Went Wrong for Kodak*, THE INDEPENDENT (January 20, 2012).

[227] *Id.*

[228] Claudia H. Deutsch, *At Kodak, Some Old Things Are New Again*, N.Y. TIMES, May 2, 2008.

[229] *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 managements reaction was, 'that's cute—but don't tell anyone about it.'"). *See also* Usborne, *The Moment it All Went Wrong for Kodak* (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."). *But see* Scott Anthony, *Kodak's Downfall Wasn't About Technology*, HARV. BUS. REV. (July 15, 2016) (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).

[230] Clark Gilbert & Joseph L. Bower, *Disruptive Change: When Trying Harder Is Part of the Problem*, HARV. BUS. REV. (May 2002) (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).

[231] Mike Spector & Dana Mattioli, *Kodak Teeters on the Brink*, WALL ST. J., Jan. 5, 2012.

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

B. Employees-Intrapreneurs

In the last few decades, entrepreneurs acting as employees inside giant conglomerates became more prominent in the innovation process. Large conglomerates began to realize that innovation could yield supra-competitive profits. As a result, companies like Apple,[232] IBM,[233] and Google[234] began encouraging employees to pursue individual projects of their choice. These conglomerates instigated opportunities for their workers to "think like entrepreneurs" and develop their ideas via special processes. In an interview in *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. But again, that was a core team of 50 people.[235]

Business history is filled with stories about employees that successfully transformed their firms through innovations. As mentioned above, Sony's decision to support the personal project of one of its in-house engineers ultimately helped revolutionize the gaming industry. 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.[236] In 1994, Kutaragi began working with Nintendo to develop a CD-ROM based Nintendo machine to improve video game quality. Upon learning of his collaboration with Sony's business competitor Sony executives sought to fire Kutaragi. However, then-CEO Norio Ohga realized the value of this innovation and encouraged Kutaragi's efforts. Sony continued to develop this gaming endeavor with Nintendo.[237] Nintendo ultimately passed on

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[232] *See* Jessica E. Lessin, *Apple Gives In to Employee Perks*, WALL ST. J., Nov. 12, 2012 (describing Apple's Blue Sky Program which allows select employees to spend a few weeks on personal projects).

[233] *Think Friday: Taking the Time to be Innovative*, IBM.COM: BLOGS (Aug.10, 2012) (explaining IBM's "Think Friday" method which gives employees the freedom to spend time every week engaging in personal projects).

[234] Andrea Huspeni, *Google's 20 Percent Rule Actually Helps Employees Fight Back Against Unreasonable Managers*, ENTREPRENEUR.COM (June 7, 2017), https://www.entrepreneur.com/article/295372 (detailing Google's 20% Rule that allows employees to spend 20% of their work week on personal projects).

[235] *Jobs talks about his Rise and Fall*, NEWSWEEK MAGAZINE, Sept. 30, 1985. *See also* G. Ahuja & C.M. Lampert, *Entrepreneurship in the Large Corporation: A Longitudinal Study of How Established Firms Create Breakthrough Inventions*, 22 STRAT. MANAG. J. 521, 522 (2001).

[236] Jake Swearingen, *Great Intrapreneurs in Business History*, MONEY WATCH, CBN NEWS (Apr. 10, 2008), https://www.cbsnews.com/news/great-intrapreneurs-in-business-history/.

[237] *Id.*

Kutaragi's CD-ROM based gaming system, which Sony later used to develop the PlayStation. 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.[238]

Similarly, Texas Instruments researcher Larry Hornbeck's prominence is highlighted by his receipt of an Emmy for Outstanding Achievement in Engineering and Development.[239] While employed at Texas Instruments, Hornbeck developed the Digital Micromirror Device (DMD) in 1987.[240] The company initially used this technology to print out airline tickets.[241] 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.[242] This innovative discovery ultimately created digital projectors weighing less than five pounds, thus revolutionizing the movie theater business, and allowing Texas Instruments to compete in the HDTV market.[243]

The intrapreneurial conglomerate structure presents a unique set of opportunities for employees-intrapreneurs.[244] The benefits of economies of scale, scope, and age of large, complex organizations provide prospects for employees-intrapreneurs to learn and develop their skills. They may tap into their firms' "pool of unused resources."[245] It is part of the inherent internal impulse of intrapreneurs for growth. For example, a study conducted by Professor Hamberg found that large companies had substantial research and development advantages.[246] First, they have greater diversification and marketing that increases the likelihood that the firm can exploit new discoveries. Second, these firms have long-term resources that allow them to undertake long-range projects. Lastly, they have superior laboratories, research teams, and access to substantial resources.[247]

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[238] *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/ (describing Sony's focus on gaming and phones under Hirai's leadership).

[239] *See* Ankit Kumar and Er. Poonam, *Micromirror*, INT'L J. OF TECH. RES. 1, 2 (2016) (surveying innovations and achievements in this field).

[240] *See* TEXAS INSTRUMENTS INCORPORATED, THE DIGITAL MICROMIRROR DEVICE, A HISTORIC MECHANICAL ENGINEERING LANDMARK 1-8 (2008) (same).

[241] Swearingen, *supra* note 236.

[242] *Id.*

[243] *Id.*

[244] *See, e.g.,* Ibrahim, *supra* note 147, at 1759 (recognizing the attractiveness a well-resourced company holds for an employee seeking to innovate, but unwilling to bear the financial burden and unpredictability of traditional entrepreneurship

[245] EDITH PENROSE, THE THEORY OF THE GROWTH OF THE FIRM 78 (1968).

[246] DANIEL HAMBERG, R & D: ESSAYS ON THE ECONOMICS OF RESEARCH AND DEVELOPMENT (1966).

[247] *Id.*

Similarly, Israel Kirzner describes the corporate form of business organization as an "…ingenious, unplanned device that eases the access of entrepreneurial talent to sources of large-scale financing."[248] He portrays intrapreneurs as those that possess discretionary freedom of action which enables them to act as entrepreneurs and implement their ideas without themselves becoming owners.[249] As part of his theory of "alertness" to opportunities as the foundation for all entrepreneurial activity, he emphasize the importance of alertness both internal as well as external to the organization.[250]

Indeed, recent studies have also found that innovation can occur through teams of entrepreneurs.[251] Moreover, some surveys have gone so far as to indicate that established firms that encourage intrapreneurship are more successful at pursuing innovative projects than startups.[252] Accordingly, the firm's age in and of itself no longer can stand as the sole characteristic in the model of successful innovation.[253] By pioneering innovations within the existing organizational structure, employees-intrapreneur contribute to the firm's entrepreneurial viability while strengthening their own creative spirit.[254] Thus, the phenomenon of intrapreneurship has positive effects on employees as well as organizational growth and profitability.[255]

What roles do those employee-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. Creating innovations often requires creative insights and forecasting market demands. It may also

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[248] ISRAEL M. KIRZNER, PERCEPTION, OPPORTUNITY, AND PROFIT 104 (1979).

[249] *Id.*

[250] ISRAEL M. KIRZNER, DISCOVERY AND THE CAPITALIST PROCESS 18 (1985).

[251] *see* MARTIN RUEF, THE ENTREPRENEURIAL GROUP: SOCIAL IDENTITIES, RELATIONS, AND COLLECTIVE ACTION 168 (2010) (finding entrepreneurship in group to be much efficient); Hans K. Hvide, *The Quality of Entrepreneurs*, 119 ECON. J. 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").

[252] *See* Timothy Dunne et al., *Patterns of Entry and Exit in U.S. Manufacturing Industries*, 19 RAND J. ECON. 495, 513, tbl. 11 (1998) (an empirical study on entry and exit rates for both startups and diversifying entrants); P.A. Geroski, *What Do We Know About Entry?*, 13 INT'L J. INDUS. ORG. 421, 424 (1995) ("[D]e 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, 484 (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).

[253] *See* Diego B. Avanzini, *Designing Composite Entrepreneurship Indicators*, *in* ENTREPRENEURSHIP AND ECONOMIC DEVELOPMENT 37, 39-40 (Wim Naudd 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).

[254] *Id.* ("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.").

[255] B. Antoncic & R.D. Hisrich, *Construct Refinement and Cross-Cultural,* 16 J. of Bus. Venturing 495, 496 (2001).

necessitates bridging technical gaps with scientific knowledge and technical lab skills.[256] Those who come from the lower levels of the organization are likely to possess more technical and technological knowledge and expertise.[257] Those who come from the management level may serve as visionaries and develop efficient business strategies to implement the innovation.

Pinchot and Pellman claim that while employees-intrapreneurs must be leaders, they differ considerably from ordinary managers.[258] They seek innovative opportunities, engage in teamwork, and make rapid decisions under uncertainty.[259] Intrapreneurs act like entrepreneurs, only with better access to research and funding than entrepreneurial agents normally have.[260] 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.[261] Accordingly, they possess similar characteristics to entrepreneurs such as: creativity, risk-taking, leadership, and self-motivation.[262]

Other scholars claimed that managers can also assume the role of intrapreneurs within certain organizations.[263] They may help the internal venture navigate the company's social-political environment.[264] While intrapreneurs-managers may have other responsibilities that keep them away from monitoring all key functions of the discovery, they often advocate its continuous expansion, resources, and legitimacy.[265] Intrapreneurial ventures may be costly and high-profile, embodying substantial risks for the organization and significant threats to the status quo.[266] The hierarchical power of managers-intrapreneurs and their organizational knowledge enables them to foster highly innovative (and costly) ventures.

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[256] *See* R.A. BURGELMAN AND L. SAYLES, INSIDE CORPORATE INNOVATION: STRATEGY, STRUCTURE, AND MANAGERIAL SKILLS 5 (1986) (observing internal entrepreneurship from bottom up).

[257] M. A. Maidique, Enterepreneurs, *Champions, and Technological Innovation*, SLOAN MANAG. REV., 59, 60 (1980) (noting intrapreneurs can come from lower levels as well as middle and upper levels of the firm).

[258] GIFFORD PINCHOT AND RON PELLMAN, INTRAPRENEURING IN ACTION: A HANDBOOK FOR BUSINESS INNOVATION 87 (1999) (Distinguishing intrapreneurs from middle managers).

[259] *Id.*

[260] *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).

[261] Swearingen, see *supra* note 236 (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).

[262] *Id.*

[263] *See* Day, *supra* note 46, at 148 (describing intrapreneurs as "champions" of innovation in the organizations).

[264] S. Venkataraman, R. G. McGrath and I. C. MacMillan, *Progress in Research on Corporate Venturing,* in THE STATE OF THE ART OF ENTREPRENEURSHIP 10 (1992).

[265] Day, *supra* note 46, at 153 (discussing top management as dual-role intrapreneurs)

[266] *See* Tushman, *supra* note 224, at 178 (B. Staw and L. Cummings Eds., 1985).

Intrapreneurs also have the ability to assume a dual role in the innovation process. 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. The program permitted 3M employees to spend some of their time at work developing innovative ideas.[267] Intrapreneurs may also seek new discoveries independently outside of their firm. 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.[268]

Intrapreneurs develop a strong entrepreneurial identity and sense of responsibility when they are empowered to claim ownership of their tasks.[269] Their motivation to innovate may be maintained through job design, formal ownership structures, or monetary incentives. They identify gaps between intra-firm capabilities and market discoveries, and import or create new products or services.[270]

A study that assessed successful intrapreneurial environments emphasized five distinct factors: management support, employee-work discretion, organizational boundaries, rewards and reinforcement, and time availability.[271] Google, for instance, utilizes an "innovation time off" program, which allows employees to spend part of their workday developing their own intrapreneurial projects. Notable programs such as Gmail and Google News were developed through Google employee's efforts within the innovation time off program.[272] Microsoft employs innovation initiatives known as "The Garage", which "supports and encourages problem solving in creative ways.[273] The program provides space, personal incentives, and project development tools to stimulate innovation.[274] It allows Microsoft employees to use Microsoft products to develop new projects with guidance from technical and market advisors.[275] The program also delivers a unique release process which helps employees distribute their experiments quickly. Both of these programs are indicative

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[267] Swearingen, *supra* note 236.

[268] *Id.*

[269] ORLY LOBEL, TALENT WANTS TO BE FREE *supra* note 21, at 173-186 (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. That is, they must view their jobs and the work that they are doing while at work as an extension of their personal identity to increase innovation).

[270] Swearingen, *supra* note 236 (discussing Intrapreneur Larry Hornbeck's development of the Digital Micromirror Device which re-invented modern Hollywood cinema projects).

[271] Jeffrey S Hornsby, Donald F Kuratko and Shaker A Zahra, *Middle Managers' Perception of the Internal Environment for Corporate Entrepreneurship: Assessing a Measurement Scale,* 17 J. OF BUS. VENTURING 253, 254 (2002).

[272] Ibrahim, *supra* note 147, at 1754–55.

[273] MICROSOFT, *What is The Garage?* https://www.microsoft.com/en-us/garage/about/ (last visited Feb. 13, 2018).

[274] *Id.*

[275] *Id.*

of how large companies enable employee-work discretion and managerial support to increase innovative discoveries within the firm.

Lastly, research also emphasized the importance of providing intrapreneurs with autonomy.[276] When provided with independence, intrapreneurs play a vital role in changing their competitive environment.[277] Yet, when management's interest is not matched with that of intrapreneurs, the latter seek opportunities outside of the organization.[278] 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 in as employees or embarking on an independent road, society ultimately benefits from intrapreneurial knowledge.

III. 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 a "human capital greenhouse." 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. Google delivers training programs and opportunities for development in various ways, such as discussions, simulations, and on-the-job training.[279] 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.[280] These employees can later share that experience with other market players or utilize it in their own ventures.

Organizations committed to innovation may groom employees to develop entrepreneurial skills. 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. These corporate entrepreneurial development programs may be formal or informal.[281] For instance, through Adobe's KickStart program employees are offered two-day innovation workshops along with $1000 gift card to develop an idea or prototype.[282] Studies show that indeed

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[276] R. M. KANTER, *supra* note 251, at 5.

[277] *Id.*

[278] *Id.*

[279] Laura He, *Google's Secret to Innovation: Empowering Its Employees*, FORBES, Mar. 29, 2013.

[280] Google Careers, company website, https://careers.google.com/fields-of-work/people/.

[281] Neal E. Thornberry, *Corporate Entrepreneurship: Teaching Managers to be Entrepreneurs*, 22 J.OF MANAG. DEV. 329, 330 (2003).

[282] Jacob Morgan, *The Innovation Game: Adobe's New Strides to Keep Employees Engaged*, FORBES, Feb. 25, 2015.

organizations can train managers to act like entrepreneurs and that these actions can result in significant new value creation.[283]

Cultivating development practices can elevate entrepreneurial conduct in various circumstances and support employees' involvement.[284] The innovative environment requires adjustment to changing market demands and staying informed about newest technologies.[285] Accordingly, many intrapreneurial firms invest continuously in professional development, as well as individualized coaching, and learning opportunities. 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.[286]

Scholars noted that this type of investment in intrapreneurs empowers them to react creatively to new challenges, adjust to dynamic situations, and manage uncertain conditions.[287] Moreover, it is an effective venue for employees to appreciate the value of cooperation and cross-functional perspectives.[288] 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.[289] Entrepreneurial networks are built through the development of ideas and ventures.[290] Investors in entrepreneurial ventures are often intrapreneurs themselves, who acquired familiarity with the unique process of innovative ventures. Serial intrapreneurs frequently use their networking abilities to obtain funding more easily. For example, Facebook was initially funded by Peter Thiel, the co-founder of PayPal, chief officer of Ebay, and a partner at the accelerator

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[283] *See* Thornberry, *supra* note 281, at 331. *See also* Ali Reza Ma'atoofi and Kayhan Tajeddini, *The Effect of Entrepreneurship Orientation on Learning Orientation and Innovation: A Study of Small-Sized Business Firms in Iran*, 1 INT. J. OF TRADE, ECON. AND FIN. 1, (2010) (finding a significant positive relationship between entrepreneurship orientation and increased innovation in 82 small firms); Lan Li, Eliza Ching-Yick Tse & Jing-Ling Zhao, *An Empirical Study of Corporate Entrepreneurship in Hospitality Companies*, INT. J. OF HOSPITALITY & TOURISM ADMIN. (2009) (evaluating the impact of organizational structure to positively or negatively impact innovation within the firm); K. ERKKILA, ENTREPRENEURIAL EDUCATION 5 (2000).

[284] *See* Bård Kuvaas and Anders Dysvik, *Exploring alternative relationships between perceived investment in employee development, perceived supervisor support and employee outcomes*, 20 NORWEGIAN SCHOOL OF MANAG. H. R. MANAG. J., 5 (2010) (discussing the impact of direct supervisor support and relationships in fostering and improving work quality, retention, and development); James C. Hayton, *Promoting Corporate Entrepreneurship Through Human Resource Management Practices: A Review of Empirical Research*, 15 H.R. MANAG. REV. 15 (2005) 21–41 (discussing the need for organizational learning and collaboration to promote entrepreneurial activity of employees).

[285] *See* Inder Sidhu, *How Amazon Keeps Its Edge*, FORBES, Sept. 13, 2010 (discussing Amazon's ability to develop new technology and apply it to different marketplaces and applications).

[286] SQUARESPACE, https://www.squarespace.com/about/careers.

[287] MICHAEL H. MORRIS, DONALD F. KURATKO, JEFFREY G COVIN CORPORATE ENTREPRENEURSHIP & INNOVATION 190 (2010).

[288] *Id.*

[289] *Id.*

[290] Thomas Hellmann & Veikko Thiele, *Fostering Entrepreneurship: Promoting Founding or Funding?,* (Jan. 1, 2017), available at SSRN: https://ssrn.com/abstract=2912941.

Y Combinator.[291] Andy Bechtolsheim, chief hardware designer and co-founder of Sun Microsystems and consultant to Xerox, was one of the initial investors in Google.[292]

Lastly, intrapreneurial firms may also instill in their employees ways to remain alert to opportunities. Researching new market demands and seeking technological gaps are some techniques utilized in such organizations to remain attentive to new possibilities.[293] Studies noted some effective training may include development of entrepreneurial mindset by emphasizing acceptance of change, willingness to take risks and assume responsibility, and collaborate attitudes and practices.[294] They found that this type of entrepreneurial training in intrapreneurial firms generated the highest performance and distinguished less entrepreneurial from more entrepreneurial organizations.[295] As discussed next, such exit risks may be more career-related decisions, rather than compensation-driven.

B. Maintaining Exit Opportunities and Knowledge Spillover

Information quickly diffuses to other market players.[296] There is a sharp decline in the marginal cost of discovery once such knowledge is made publicly available.[297] Others learn about the new discovery, improve it, and apply it to other uses and industries. The outcome of this knowledge spillover process is the transformation of the entrepreneurial special premium into common business profits.[298] This is the transient nature of entrepreneurial success. This process increases the competitiveness of the market and interchangeability of innovative knowledge in society.[299]

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[291] 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.

[292] John Markoff, *Even Sun Microsystems Had Its Roots at Xerox PARC*, N.Y. TIMES BLOG, May 28, 2014.

[293] *See* He, *supra* note 279 (Google's training and development encourage employees to suggest new areas for development and highlight technological gaps and develop prototypes to fill those gaps.).

[294] MORRIS, *supra* note 287, at 191.

[295] *Id.,* at 192 (finding that group-than individual-oriented were more influential).

[296] *See* Lisa Larrimore Ouellette, *Do Patents Disclose Useful Information*? 25 HARV. J. LAW & TEC 531, 550 (2012) ("patent citations do provide a statistically significant signal of knowledge 'spillover' -- i.e., that patentees are learning from roughly half the patents they cite."); 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); Dan L. Burk, The *Role of Patent Law in Knowledge Codification*, 23 BERKELEY TECH. L.J. 1009 (2008) (debating the effectiveness of patents). 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).

[297] Schumpeter, *supra* note 73, 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…").

[298] *Id.* at 261.

[299] 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 128, 111 (1994) (arguing that learning from failure increases the competitiveness of the region). *See also* Edward L. Glaeser, William R. Kerr, and Giacomo A.M. Ponzetto, *Clusters of entrepreneurship*, 67 J. OF URB. ECON. 150, 151 (2010) (claiming that

Indeed, intrapreneurial firms serve as major contributors to the development of human capital as greenhouses for future entrepreneurs. When they provide training, knowledge, experience, capital, they create appropriate conditions for creative intrapreneurs to flourish. Yet, these employees may regardless leave to work for a competitor or seek to pursue independent projects. In those moments, intrapreneurial firms become major facilitators of knowledge spillovers. 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 so beneficial to society. These firms inadvertently participate in welfare-increasing diffusion of knowledge from intrapreneurial agents to entrepreneurial agents to society. Indeed, Steve Jobs and Steve Wozniak both worked at Atari, Inc. and Hewlett-Packard respectively, prior to founding Apple Computers.[300]

Research has long demonstrated that open markets with free labor market mobility function as a conduit for facilitating the dissipation of knowledge.[301] Entrepreneurial-talent turnover is a crucial part of the innovation process that leads to economic growth.[302] Employees-intrapreneurs may utilize their knowledge in new ways to develop innovations in other industries or technologies. Scholars, such as Jaffe, Thompson, and Shane, have contended that innovative knowledge not only facilitates technological change but also generates opportunities for third parties.[303] Knowledge encourages "increased rates of learning and access to knowledge on a rapidly developing research frontier."[304] In the Boston biomedical industry, knowledge spillover has allowed for increased output and innovation through strategic alliance partnerships.[305]

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entrepreneurship is higher when fixed costs are lower and when there are more entrepreneurial people).

[300] *Steve Jobs Biography*, A&E TELEVISION NETWORKS (Nov. 6, 2017), https://www.biography.com/people/steve-jobs-9354805.

[301] *See, e.g.,* ANDR 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."); DAVID B. AUDRETSCH, *supra* note 55, at 5; ENTREPRENEURSHIP, INNOVATION, AND THE GROWTH MECHANISM OF THE FREE-ENTERPRISE ECONOMIES (Eytan Sheshinski et al. eds., 2007).

[302] *See* Steven Klepper reiterated these ideas in a study on knowledge spillover in Silicon Valley. Steven Klepper, *Silicon Valley, A Chip off the Old Detroit Bloc*, *in* ENTREPRENEURSHIP, GROWTH, AND PUBLIC POLICY 79 (2009) (contending that entrepreneurs function as a conduit for facilitating spillover of knowledge, as they take knowledge that might otherwise have remained uncommercialized).

[303] *See* Jaffe, A. B., Trajtenberg, M., & Henderson, R. *Geographic Localization of Knowledge Spillovers as Evidenced by Patent Citations*, 108 Q. J. OF ECON. 577–598 (1993); S. Shane, *Technological Opportunities and New Firm Creation,* 47 MANAG. SCI. 205–220 (2001); P. Thompson, & M. Fox-Kean, *Patent Citations and The Geography of Knowledge Spillovers: A Reassessment*, 95 AM. ECON. REV. 450–460 (2005).

[304] *See* Jason Owen-Smith & Walter Powell, *Knowledge Networks as Channels and Conduits: The Effects of Spillovers in the Boston Biotechnology Community*, 15 ORG. SCI., 5, 10 (2004) (demonstrating that geographic propinquity and organizational form fundamentally alter the flow of information through a network).

[305] *Id.* (showing that third party contractual linkages among physically proximate organizations

As the knowledge context increases, spillover effects around intrapreneurial firms stimulate an increasing number of related innovations. This positive externality of intrapreneurial enterprises is beneficial to the economy.[306] Several studies found that employee turnover contributed to important innovations in geographical clusters of high technology area such as Silicon Valley and Root 128.[307] 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.[308]

By their nature, many creative employees-intrapreneurs aspire to begin their own independent journey.[309] The ideas of autonomy and starting fresh are the main characteristics of the innovative development process and affects those dealing with it day-to-day.[310] 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.[311] 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.[312] Consequently, they may leave secure positions and wages to pursue their interests autonomously and take with them their valuable knowledge and experience. Take Anastasia Leng who had a secure position at Google but left to pursue her own entrepreneurial venture.[313] 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.[314] Jaspar Vallance also left a job at Google as a retail industry manager to pursue his own online consulting business.[315] He felt the company was becoming "too corporate"

represent relatively transparent channels for information transfer).

[306] *See, e.g.*, Ács, *supra* note 55, at 1; AUDRETSCH, *supra* note 55.

[307] Bruce Fallick , Charles A Fleischman and James B Rebitzer, *Job-Hopping in Silicon Valley: Some Evidence Concerning the Microfoundations of a High-Technology Cluster*, 88 REV. OF ECON. & STAT. 472, 473 (2006). LOBEL, *supra* note 21, at 5; Gilson, supra note 167, at 905.

[308] Fallick et al. *supra* note 307, at 475.

[309] Thornberry, *supra* note 281, at *330*.

[310] *See* Licht, *supra* note at 95, at 822.

[311] *See* R. A. Peterson and D. G. Berger, *Entrepreneurship in Organizations: Evidence from the Popular Music Industry*, 16 ADMIN. SCI. QUART., 97, 97 (1971) (providing that corporate entrepreneurship is usual means for coping with competitive threats.).

[312] *See* Rajshree Agarwal et al., *The Process of Creative Construction: Knowledge Spillovers, Entrepreneurship, and Economic Growth*, 1 STRATEGIC ENTREPRENEURSHIP J. 221, 221 (2007) (discussing how entrepreneurial ideas and opportunities are generated and how knowledge spillovers create a process of creative construction).

[313] Megan Rose Dickey, *Google Begged This Woman to Stay, But She Left to Start Her Own Company,* BUSINESS INSIDER (May 26, 2013).

[314] *Id.*

[315] *Id.*

for him and wanted to pursue opportunities independently despite the financial toll of leaving a secured job and starting anew.[316]

Intrapreneurship, therefore, is important in providing a hub for intrapreneurs to commercialize knowledge and ideas that might otherwise remain uncommercialized by the firm.[317] It contributes to economic growth by improving and refining existing breakthroughs and delivering them to the market through other innovation agents—independent entrepreneurs. Consequently, they are instrumental in creating the next generation of entrepreneurs that will establish new businesses and create new jobs, intensify competition, and increase economic productivity.[318]

Employees-intrapreneurs are constantly alert to other opportunities. Accordingly, autonomous strategic behavior is very likely to manifest itself. Employees-intrapreneurs with entrepreneurial aspirations may leave regardless of carrots dangled in front of them or bones thrown their way. They take their innovative knowledge, training, and sometimes trade secrets with them to their next employer or independent endeavor. While knowledge spillover is essential to the development of innovation in a society, it can be detrimental to intrapreneurial firms. Their investments in human capital remains transient, susceptible to immediate harm, and dependent on factors beyond the control of the firm.[319] As a result, intrapreneurial firms often adopt lock-in strategies, as the next part reveals.

IV. THE NEGATIVE SPILLOVERS OF INTRAPRENEURSHIP

Prior to founding Wal-Mart, Sam Walton worked as a managerial trainee at J.C. Penney Company.[320] He was often frustrated by the paperwork and other corporate constraints. Walton decided to leave J.C. Penney and take lessons in sales. He took a risk by developing a new model of customer focused low-pricing model, which developed into today's retail giant. Similarly, Steve Jobs worked at Atari, Inc. prior to leaving and founding Apple Computers.[321] Jobs later created Pixar Animations, which was thereafter acquired by Disney.[322] 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.[323] Agarwal implemented lessons he learned at Apple when founding

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[316] *Id.*

[317] ÁCS, *supra* note 55, at 8. *See also* CHRISTENSEN, *supra* note 57, at 86.

[318] *See* CHRISTENSEN, *supra* note 57, at 88.

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

[320] Thomas C. Haynes, *Sam Walton is Dead at 74; the Founder of Wal-Mart Stores,* NY TIMES, April 6, 1992.

[321] *Steve Jobs Biography*, A&E TELEVISION NETWORKS (Nov. 6, 2017), https://www.biography.com/people/steve-jobs-9354805.

[322] *Id.*

[323] Bianca Male, *8 Management Lessons I Learned Working at Apple*, BUSINESS INSIDER, Aug. 2, 2010.

Posterous, a successful blogging platform that was purchased later by Twitter.[324]

Employee turnover is a common phenomenon across all type of firms, not necessarily intrapreneurial. 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. The entrepreneurial decision-making process includes not only known calculable risks but also tremendous uncertainty about potential markets for the new discovery, its possible uses, and its forthcoming effects.[325] Lastly, the non-rivalry nature of innovative knowledge and the constant threat of competing firms underscores the transiency of the entrepreneurial process.[326] 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 with it their competitive position in the market.

The question of whether and to what extent the law should interfere to determine who owns or controls innovative knowledge remains open.[327] Intrapreneurs find themselves in a predicament feeling trapped by non-compete agreements, confidentiality agreements or restricted from utilizing their knowledge abilities. Yet, the interests of the intrapreneurial firms and the innovative process are also relevant to consider when discussing employee mobility questions. This part attempts to fill this gap by considering the negative spillover of the innovation process from the intrapreneurial organization's perspective.

A. Human Capital Lock-in

Mobility of intrapreneurial human capital can greatly contribute to economic growth.[328] It may be instrumental in providing a missing link in the development of specific opportunities.[329] Intrapreneurial firms usually have plenty of resources to invest in training and development of human capital.[330] By doing so, they maintain the supply of entrepreneurial talent.

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[324] *Id.*

[325] *See* Eyal-Cohen, *supra* note 17, at 977 (noting the need to adjust legal structures to accord to the entrepreneurial process).

[326] *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.).

[327] Drummonds, *supra* note 24, at 400 (questioning whether the law of trade secrets, non-competition agreements, employee duty of loyalty, and tortious interference encourage employee mobility).

[328] Klepper, *supra* note 302.

[329] *See, e.g.*, Ács, *supra* note 55, at 1; AUDRETSCH ET AL., *supra* note 55.

[330] *See* Derek Thompson, *Google X and the Science of Radical Creativity*, THE ATLANTIC, Nov. 2017 (describing Google X, an innovation-focused Google subsidiary providing employees with resources and autonomy to develop new technology and inventions).

Investments in intrapreneurs provide them with knowledge, skills, and awareness to ideas they can use in their next organization or independent venture.[331] Some of this information may be protected under intellectual property rights such as patents, trade secrets, and copyrights. Yet, there are many organizational processes, undeveloped opportunities, strategic planning, and other innovative measures that cannot be legally protected. Take Facebook that 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. This exemplifies creative organizational processes that develop a culture of innovation and encourage employees' alertness to opportunities.[332]

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.[333] Firms also initiated non-compete agreements to restrict employees from working in certain geographical regions, industries, or competitor firms.[334] Other legally binding arrangements that became common practice are non-disclosure and confidentiality agreements,[335] non-solicitation and non-dealing agreements,[336] and bonus-forfeiture agreements.[337] These legal arrangements aim to deter employees-intrapreneurs from leaving their firms and taking their knowledge with them. Lastly, under the federal Economic

[331] *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 (Jun. 5, 2017), https://www.cnbc.com/2017/06/05/how-mark-zuckerberg-keeps-facebook-employees-innovating.html.

[332] *See* Doug Gross, *Coding and Red Bull*: *Facebook Holds All-Night Hacking Session*, CNN (May 18, 2012), https://www.cnn.com/2012/05/17/tech/social-media/facebook-night-before/index.html
(commenting on Facebook's culture of promoting innovation by encouraging employees to tweak software and engage with projects of their choice).

[333] US Copyright Office, Circular 9: Work-Made-For-Hire under the 1976 Copyright Act.

[334] *See* Evan Starr, J.J. Prescott, and Norman Bishara, *Noncompetes in the U.S. Labor Force* 3, available at SSRN: 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).

[335] *See* Stone, *supra* note 336, at 578 (2001) (noting that there has been much litigation between employers and former employees involving such agreements).

[336] *See* Norman Bishara, Kenneth J. Martin, and Randall S. Thompson, *An Empirical Analysis of Noncompetition Clauses and Other Restrictive Postemployment Covenants,* 68 VAND. LAW 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 customers or clients); Katherine V.W. Stone, *The New Psychological Contract: Implications of the Changing Workplace for Labor and Employment*, 519 UCLA LAW REV., 577, 578 (2001) (noting that restrictive covenants in the employment context are growing more prevalent).

[337] *See, e.g.,* Tatum v. Ameritech Corp., 305 F.3d 737, 745 (7th Cir. 2002) (holding that forfeiture-for-competition agreement is valid when reasonable); Fearnow v. Ridenour, Swenson, Cleere & Evans, P.C., 138 P.3d 723 (Ariz. 2006) (en banc) (holding that while an outright restriction on competition will be invalid, the court will enforce a reasonable forfeiture-for-competition arrangement); Brockley v. Lozier Corp., 488 N.W.2d 556, 563-64 (1992) (Neb. 1992) (holding that while forfeiture-for-competition provision was unreasonable in that case, it is a valid restrictive covenant if reasonable).

Espionage Act, organizations can pursue criminal prosecution of their employees or competitors for commercial spying.[338]

In recent years there has been a considerable controversy surrounding these post-employment legal arrangements.[339] Unlike registered patents, these types of contractual covenants usually do not expire, and they have the potential to create a perpetual monopoly on ambiguously defined "protected information." Post-employment arrangements aim to place constraints on the employee's ability to carry knowledge and skills outside the organization. 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. These post-employment restricting covenants have been applied even to lower-ranking employees in companies such as Jimmy John and Starbucks.[340] These agreements became so common they are utilized not only in entrepreneurial firms, but also in professional service firms.[341]

Moreover, the legal regimes regarding post-employment constraints vary from state to state. In states like California, North Dakota, Washington, and Massachusetts, labor mobility is highly protected and most non-complete agreements are unenforceable.[342] Other state laws uphold such agreements with significant deference.[343] Accordingly, these measures have been subject to inconsistent judicial enforcement.[344] In recent years, several

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[338] 18 U.S.C.A. § 1831 (prohibiting economic espionage). *See generally* James H. A. Pooley, Mark A. Lemley, and Peter J. Toren, *Understanding the Economic Espionage Act of 1996*, 5 TEX. INTELL. PROP. 177, 179 (stating that the 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.).

[339] *See, e.g.,* Orly Lobel, *Enforceability TBD: From Status to Contract in Intellectual Property Law*, 96 B.U. L. REV. 869, 870-871 (2016) (detailing congressional efforts to limit restrictive covenants for employment); Ronald J. Gilson, *The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants Not To Compete,* 74 N.Y.U. L. REV. 575 (1999) (examining different high tech industrial districts and concluding the differences lie between the enforcement of non-competes). *But see* Jonathan Barnett, and Ted M. Sichelman, *Revisiting Labor Mobility in Innovation Markets* (May 26, 2016), available at SSRN: https://ssrn.com/abstract=2758854 or http://dx.doi.org/10.2139/ssrn.2758854 (arguing that these studies misconstrue legal differences across states and otherwise are flawed, incomplete, or limited in applicability).

[340] Drummonds, *supra* note 24, at nn.93-98 and accompanying text.

[341] *Id.* at 417 ("Even the 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 first getting approval from KBR's lawyers.").

[342] For example, section 16600 of the California Business Professional Code voids contracts that restrain persons from engaging in a lawful profession. *See* R. Moffat, *Making Non-Competes Unenforceable,* 54 ARIZ. L. REV. 939, 946 (2012).

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

[344] *See* Daniel D. Quick, *Physician, Meet Thy Covenant*, 86 MICH. BAR J. 22 (2007) (discussing

courts have narrowed the scope of protection granted to employers and favored employees' mobility and entrepreneurship.[345] 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. 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. 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 organization.[346] Thus, firms may also seek a form of assurance that they will be able to receive a fair return on their investment in their employee's human capital. Via restrictive covenants they prohibit intrapreneurs from exploiting the knowledge gained during their employment. They attempt to restrict the ability of employees *to use* knowledge they acquired in future employment or in independent endeavors. Next, the paper 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. Firms may attempt to prevent valuable employees from leaving the organization. Yet, once these employees have made up their mind, in light of the risk in losing competitive information, intrapreneurial firms may use various techniques in attempt to lock the employee *out* of securing employment elsewhere. Anti-poaching is one technique intrapreneurial firms may use.

Poaching in the intrapreneurial context refers to when an external organization strategically attempts to hire intrapreneurs away from their current employers. This is a fundamental element of free labor markets and the freedom to contract. 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. They aggressively recruit those intrapreneurs who seem to have obtained the greatest valuable

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Michigan's historical prohibition on noncompete clauses).

[345] *See, e.g.,* W.R. Grace & Co. v. Hargadine, 392 F.2d 9, 20 (6th Cir. 1968) (holding that restrictive covenants should construed narrowly).

[346] *Id.*

organizational knowledge in order to acquire that knowledge for free, improving the poacher's competitive position in the market. Labor law scholars have described such aggressive hiring of competitor's employees as free riding and raids, and have questioned whether the law should interfere to prevent such incidents.[347] Others argued that an inability to control employee mobility may disincentivize companies from investing in employee training.[348]

This type of behavior is not unique to the innovative industry. Employers in different industries (including academia) seek to engage in the lateral hire of experienced workers from rivals with institutional knowledge and training. It saves them from making themselves the same investment in knowledge. Such is the American way.[349] On the other hand, poached firms also seek to safeguard their investments in human capital and their organizational knowledge. Yet, they would like to reserve the opportunity to be poachers themselves and tap into the talent, skill, knowledge, and ideas of employees currently working for their competitors.[350]

While in non-compete and non-disclosure agreements employee-intrapreneurs are being sued by their former organizations, in poaching cases the plaintiff usually aims for deeper pockets. In the latter cases, organizations are suing their competitors for steeling away their trade secret, confidential information, and organizational knowledge by luring their intrapreneurs away. For instance, in late 2017, Office Depot filed suit against its smaller rival HD Supply claiming HD improperly gained access to Office Depot's confidential and proprietary information through the hiring of a highly-ranked manager.[351] Office Depot's suit accuses HD Supply in engaging in unfair competition and aiding and abetting the employee's breach of restrictive covenants, fiduciary duty and loyalty. The court has yet to decide this case.

Nevertheless, in recent years we have witnessed the opposite phenomenon. Hiring conspiracies, anti-poaching or no-raid agreements between organizations lately began to draw antitrust authorities' attention.[352] Under these agreements, top management agrees *ex ante* to avoid approaching, recruiting, or employing another organization's

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[347] *See* LOBEL, *supra* note 21, at 4.

[348] Brandon S. Long, *Protecting Employer Investment in Training: Noncompetes vs. Repayment Agreements*, 54 DUKE L.J. 1295, 1302 (2005).

[349] Drummonds, *supra* note 24, at 404.

[350] *Id.* at 405.

[351] Jeff Ostrowski, *Office Depot sues HD Supply, accuses rival of raiding employees, trade secrets*, PALMBEACHPOST.COM (Oct. 27, 2017), http://www.palmbeachpost.com/business/office-depot-sues-supply-accuses-rival-raiding-employees-trade-secrets/U7OkaOmaBZ6zEjmVJx9nOP/.

[352] *See* Mark L. Krotoski, *DOJ Antitrust Division Announces Imminent Criminal Prosecution for 'No Poaching' Agreement*, NAT'L LAW REV. (Feb. 13, 2018), https://www.natlawreview.com/article/doj-antitrust-division-announces-imminent-criminal-prosecution-no-poaching (stating that the DOJ would be seeking harsher punishments against companies that engage in no-poaching agreements due to the popularity of such illegal conduct).

employees and vice versa. These agreements are depicted as anticompetitive and a confinement of labor and trade. They are viewed as hiring collusions on the ability of employees to move freely in the employment market.[353]

Reports show that Apple's founder Steve Jobs and Google's CEO Eric Schmidt mutually agreed not to recruit each other's employees.[354] These practices were also routinely utilized with Google and Apple's business partners as well.[355] In fact, in September of 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.[356] 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. Plaintiffs argued such agreements limited their career mobility and stifled attempts to earn higher salaries.[357] The settlement followed a 2009 antitrust investigation into the companies by the Department of Justice ("DOJ").[358] During this investigation, the DOJ determined that the same group of Silicon Valley companies – Adobe, Apple, Google, Intel, Intuit, and Pixar – had agreed not to solicit or "cold call" employees of other companies.[359] 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 employers."[360] 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, Dreamwork, and others.[361]

Anti-poaching agreements have been denounced as unreasonable restraint of trade and a violation of antitrust.[362] In the case of agreements not to compete for *customers*, the latter end up paying higher prices because of the lack of competition.[363] Whereas in the case of agreements not to poach employees, *workers* receive lower wages because of the lack of

[353] Drummonds, *supra* note 24, at 407.

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

[355] *Id.*

[356] Lance Whitney, *Apple, Google, Others Settle Antipoaching Lawsuit for $415 Million*, CNET, (Sept. 3, 2015), https://www.cnet.com/news/apple-google-others-settle-anti-poaching-lawsuit-for-415-million.

[357] *Id.*

[358] Tom Krazit, *DOJ Settles No-Recruit Claims Against Tech Companies*" CNET, (Sept. 24, 2015), https://www.cnet.com/news/doj-settles-no-recruit-claims-against-tech-companies/.

[359] *Id.*

[360] Drummonds, *supra* note 24, at 408.

[361] *Id.*

[362] *Silicon Valley's No Poaching Case: The Growing Debate over Employee Mobility*, U. PENN., (April 4, 2014), http://knowledge.wharton.upenn.edu/article/silicon-valleys-poaching-case-growing-debate-employee-mobility/.

[363] *Id.*

competition. Intrapreneurs could achieve similar results by making sure their employees are not looking to leave.[364]

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.[365] Following a DOJ investigation, Ebay was prevented from entering into anticompetitive agreements for five years.[366] The popularity of no-poaching agreements has led the DOJ to take more extreme measures.[367] In 2018, the Antitrust Division announced that it would be proceeding with criminal charges against companies that engage in no-poaching agreements rather than simply pursuing civil settlements.[368]

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. Companies utilize contractual restrictions on employees' freedom during and after employment. Yet, firms may face the same restrictions when attempting to recruit intrapreneurs. Firms' recruitment efforts to maintain their team of employee-intrapreneurs may be restricted by the prevalence those same agreements. When hiring or retaining talented intrapreneurs, intrapreneurial firms may be gridlocked by similar employment-restricting covenants signed by sought after employees. 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.[369]

At times, companies who would like to attract instrumental intrapreneurs will engage in acqui-hiring—buying the entire company instead of individual employees.[370] In several of Facebook and Google's recent startup acquisitions, it was not the firm's technology or resources that motivated the purchase. Rather, their main purpose was to enlist a contingent of the startup's product engineers. This strategy help fulfill intrapreneurial organizations' intense demand for engineering talent. Acqui-hiring, therefore, utilizes the human capital in the firm but forces the firm to relinquish the projects.[371]

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[364] David Streitfeld, *Ebay Settles No-Poaching Case*, N.Y. TIMES, May 1, 2014 (stating that "The [federal antitrust settlement], announced by the Justice Department on Thursday, follows the pattern of the department's 2010 settlement against Google, Apple, Intuit and other Silicon Valley companies over similar accusations.").

[365] *Id.*

[366] *Id.*

[367] Krotoski, *supra* note 352.

[368] *Id.*

[369] *Id.*

[370] 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).

[371] *Id.* at 284.

Lastly, Garden Leave Agreements are another form of lock-out agreements. These covenants are signed by employees prior to commencement of their employment at the firm or during a post-employment settlement. Under those contracts employees continue to get paid during a period in which they are restricted from competing with their former employers. Garden leave agreements have been mainly used in Europe, and are based on the idea that "the employer pays the employee to stay at home and tend to his or her 'garden.'"[372] They often also include provisions that include non-competition prohibitions.[373]

To conclude, keeping knowledge in the firm is a crucial resource to encourage intrapreneurial firms to invest in human capital. Yet, these types of lock-out labor restrictions may be a step too far, creating several negative externalities. 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. It inhibits innovative knowledge spillover, and thus is harmful to society. 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 a person mobility. The next part will attempt to find a balance between the positive and negative spillovers of intrapreneurships.

V. 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.[374] However, the latter also create social harms by attempting to curb the drift of competitive knowledge out of the firm or free ride it by raiding other firms' employees.[375] Post-employment restrictive contracts or anti-poaching arrangements do not foster idea sharing, nor alertness to new opportunities.[376] They confine the freedom and exchange of knowledge across organizations, industries, and markets.[377]

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[372] *See* Jeffrey S. Klein & Nichols J. Pappas, *'Garden Leave' Clauses in Lieu of Non-Competes*, 241 N.Y. L.J. 24 (2009) (discussing garden leave agreements as a form of non-compete agreements).

[373] *Id.*

[374] *See infra* Part III.

[375] *See infra* Part IV.

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

[377] *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 getting rid of noncompetes allows for technical information and innovation to be shared quickly and with no restrictions. This type of sharing and the ban on noncompetes has allowed Silicon Valley to be as innovative and successful as it has been, while other industries have decidedly floundered in comparison).

Intrapreneurial firms may motivate employees' loyalty daily by adopting various practices. Bonuses, financial incentives, and ownership participation based on long-term individual performance are some examples. Emphasizing job security is another.[378] Yet, at many situations involving intrapreneurs these are not sufficient. 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. 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.[379] This "organizational technology and knowledge" is separate and greater than the individual intrapreneurs' knowledge. The latter often cannot completely identify and separate their own part in it.[380] Why should firms continue to groom intrapreneurial agents knowing they may act autonomously or strategically?

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 firm's frontiers of discovery.[381] Intrapreneurial mobility reveals unique resource combinations and expands firms' synergies and capabilities.[382] It enlarges the firms' organizational abilities and provide new avenues for future development.[383]

There exist various private ordering measures intrapreneurial players can take that may be effective. Whether financial, professional, or social, rewards greatly impact employees' motivation and retention. Some influential factors that contribute to successful retention of intrapreneurs include power and status,[384] personal development and career

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[378] *See* MORRIS, *supra* note 287, at 192.

[379] *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…")

[380] M. POLANYI, PERSONAL KNOWLEDGE 5 (1958).

[381] *See* Ibrahim, *supra* note 147, at 1746-47 (claiming that entrepreneurial disruptive innovations can destroy or end up occupying the niche filled by a corporation in some way. Internal entrepreneurship or intrapreneurship can strategically avoid disruptions that replace them, and put them on the forefront of innovation).

[382] *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 are an ideal condition, and the productivity growth of a company has been seen to correlate with the grow flow of workers.)

[383] Long, *supra* note 348, at 1355.

[384] *See* Matthew Kenney & Bahaudin G. Mujtaba, *Understanding Corporate Entrepreneurship and Development: A Practitioner View of Organizational Intrapreneurship*, 12 J. OF APPLIED MANAG.

advancement,[385] self-completion,[386] or friendship and social rewards.[387] Naturally, intrapreneurs also seek solid financial rewards and pay system.[388] Scholars argue that these financial rewards must be extensive in order to motivate employees-intrapreneurs not to leave the organization and pursue entrepreneurship independently.[389] Intrapreneurs may also attempt to narrow the scope of post-employment agreements they sign to specifically to the use of protected knowledge, rather than to future employment in general.[390]

Knowing that intrapreneurs may leave, intrapreneurial firms can take the following precautions to lower their risk. They may put a limit on access to sensitive information by each intrapreneur or restricting access to only a few trusted employees.[391] Firms may assign ownership interest to these individuals to increase their incentives for positive participation in the enterprise. Firms may also act more rapidly in rewarding or letting go of intrapreneurial actors based on their performance.[392] In order to prevent the problem of other companies' free-riding investment in human capital, firms may also take advantage of repayment agreements. These covenants require employees to reimburse firms for their training expenses if they resign before their employer recoups such investments.[393] Although cases involving such agreements are rare, courts have shown willingness to enforce them.[394] Such agreements could, therefore, be used to offset some of the negative effects of poaching of low or middle-rank employees.[395]

& ENTREPRE. 73, 74 (2007) (arguing that successful entrepreneurial firms encourage competition and recognition for successful innovations).

[385] *Id.* at 78 (discussing the importance for firms to provide training and support for intrapreneurial employees).

[386] *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).

[387] *See* MORRIS et al., *supra* note 287, at 193 (noting other factors included compensation/reward practices emphasized job security over high pay, selection of staffing and job design.)

[388] *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 STRAT. MANAG. J. 1057, 1058 (2006) (discussing the need for both outcome-based and behavior based bonuses to incentivize CEO innovation and implementation of new developments.).

[389] *See* PINCHOT, *supra* note 258, at 95 (noting that financial rewards are important but are not the only factor that motivates intrapreneurs).

[390] *See* Matthew Rossetti, *Non-Competes: Useful or Futile?,* FORBES, Jan. 30, 2018 (reporting that employer's bear the burden of proving reasonability of the non-compete and employees are encouraged to look over the agreement with a lawyer before signing, and bargaining for the most reasonable agreement.).

[391] For example, Coca-Cola restricts the employee access to its secret formula. *The Coca-Cola Hack and Who's on Hook for Office Cybersecurity*, BLOOMBERG NEWS, Jan. 11, 2018.

[392] R. A. Peterson, *Entrepreneurship and Organization* in HANDBOOK OF ORGANIZATIONAL DESIGN 10 (P. Nystrom and W. Starbuck, Eds. 1981).

[393] *Id.*

[394] *See, e.g.,* Milwaukee Area Joint Apprenticeship v. Howell, 67 F.3d 1333 (7th Cir. 1995)

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. 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.[396] Yet, if such protected information will be 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.[397]

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.[398] In cases such as the Uber-Google saga, it seems appropriate to limit the ability *to use* confidential information, rather than 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.[399] In such circumstances legal doctrines such as fiduciary and loyalty duties can be construed widely.[400] 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.[401] On the same token, while employed, intrapreneurs should not be utilizing the organization's property and time while pursuing

(where a repayment clause was upheld 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 that did not contribute to the trust fund).

[395] *Id.*

[396] *See* RESTATEMENT (THIRD) OF UNFAIR COMPETITION §39 (1995) (A trade secret is something that is not readily or publicly known, 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 of 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).

[397] James Bessen, *How Companies Kill their Employees' Job Searches,* THE ATLANTIC, Oct. 17, 2014 (reporting overall, enforcement of these noncompetes reduces investment into employees).

[398] See *infra* note 326 and accompanying text.

[399] *See, e.g.,* 28 U.S.C. § 1338 (2018) (providing a cause of action for unfair competition); §22:4 Statutory Definitions-Injunctive relief, 2 Lexis-Nexis Trade Secrets Law §22:4 (describing the Uber-Waymo litigation saga mentioned in the Introduction.).

[400] *See also* 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, 1207 (2001) (arguing that the duty of loyalty is part of the fiduciary duty and under torts stops employee from directly competing or in any way going against the employer's interest as long as the employee works for the employer).

[401] *See* RESTATEMENT (THIRD) OF AGENCY §8.05 (2006) (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) (If "an employee uses the employer's property or communicates confidential information, the employee violates an agent's duty of loyalty.")

independent opportunities.[402] And when leaving the intrapreneurial firm, intrapreneurs' duties prevent them from taking advantage of opportunities they learned about while working at their previous organization.[403]

Moreover, post-employment agreements should not seek to punish the intrapreneur for leaving the firm. They may also not seek to over restrict their mobility for reasons mentioned above. Rather, intrapreneurial firms may limit *the use* of knowledge employees possess to secure a return on their immense investments in procuring innovation. Legal arrangements should play a key role in upholding an effective balance between the two goals. Courts should prohibit exiting-intrapreneurs from misusing intangibles and trade secrets rested in their intellects. 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.[404] With such appropriate balance, of free mobility with restricted use, firms might begin treating their former employees as alumni and their exit as a revolving door.[405]

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. It will preserve intrapreneurial firms' ability to safeguard their competitive information, to recruit future intrapreneurs, and to train the next generation of entrepreneurs. It will serve the social interests of cross-fertilization and alertness to innovations.[406]

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.[407] He added the supply of entrepreneurship and created "a genuine four-group subdivision of the economy's inputs."[408] 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 system by deploying various tax rules and incentives. Each of these

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[402] *See* Cooney, *supra* at note 401, at 859 (claiming the duty of loyalty encompasses and activity and conduct of the employee that is inconsistent with his employer's interests and goals.).

[403] Ibrahim, *supra* note 147, at 413.

[404] *See, e.g.,* 18 U.S.C.S. § 798 (punishing disclosure of classified information); Counterintelligence and Security Enhancement Act of 1994, Title VIII of P.L. 103-359 (codified at 50 U.S.C. §§3161-64 (2018)). *See generally* Jennifer K. Elsea, *The Protection of Classified Information: The Legal Framework,* Congressional Research Service (May 18, 2017) (summarizing the current laws that form the legal framework protecting classified information).

[405] *See* LOBEL, *supra* note 21, at 210.

[406] Ibrahim, *supra* note 147, at 414 (opining that these employment restrictions constitute legitimate employer interests that the law may properly protect).

[407] William J. Baumol, The Microtheory of Innovative Entrepreneurship (2010)

[408] *Id.*

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. 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 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 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. And scholars that argued for or against using such indirect spending focused on factors such as administrability, efficiency, and the complexity of such incentives. Others argued 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.[409] Lastly, scholars also claimed that the tax system may be inappropriate to administer innovation spending under certain circumstances.[410] 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. The risk-smoothing effect of deductible losses is less relevant for these innovation agents with mostly negative net income.[411] They have a lesser ability to reduce taxes on successful projects by utilizing past losses. 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 entrepreneurship. Taxation of stock options does not take into account the strong desire of employee-

[409] Hasen, 2016 (proposing that in place of special tax rules policymakers should adopt rules that counteract disproportionately large tax-induced risk taking distortions).

[410] Auebach & Nusim, and others.

[411] "Entrepreneurs voluntarily bear nonsystematic risk to improve their incentives, the provision of government compulsory partial insurance through taxation would be welfare reducing." Kaplow (1995)

intrapreneurs to become independent entrepreneurs and exit the company. Taxation of intellectual property is relevant generally to intrapreneurial firms that are in a position of ripping profits compared to entrepreneurial agents that are first and foremost occupied with transforming their human capital into such intangible rights. The cost of 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 a large, public firms. Consequently, these formulas have a tendency to underestimate the distortions caused by taxing entrepreneurial agents.

Policymakers endeavoring to create a more accurate allocation of innovation-spending programs first need to inquire what *type* of innovation process they seek to embolden. Direct spending granted *ex ante* will tend be more beneficial to funding-constrained entrepreneurial agents. Tax incentive programs that involve complex calculations and planning will usually be utilized by more established intrapreneurial agents that benefit from certain economies of experience in tax compliance and administration. In an economy with limited resources, intrapreneurial agents that possess economies of scope, scale, and age are not necessarily in need of high level of 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.

VI. CONCLUSION

It has been long established that technological innovations enhance productivity and are key drivers of economic growth.[412] Innovations provide a missing link by commercializing discoveries that might otherwise remain dormant and providing opportunities for social mobility.[413] Yet, this Article argued that different innovation agents unpack discoveries in distinct ways. Understating the taxonomy of innovation agency has implications in broader policy debates in corporate governance,[414] taxation of labor and capital,[415] employment litigation,[416] and so on. Innovation theory provides various challenges to the boundaries of legal doctrines.

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[412] *See* Schumpeter, *supra* note 41, at 260. Schumpeter also criticized 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. Such a statement may indeed mean much or little. He certainly failed to make full use of it and presumably did not see all its analytical possibilities." JOSEPH A. SCHUMPETER, HISTORY OF ECONOMIC ANALYSIS, 555 (1954).

[413] *See, e.g.*, AUDRETSCH ET AL., *supra* note 55, at 1; Klepper, *supra* note 302, at 79.

[414] *See* Llene Knable Gotts, *The 'Innovation Market'*, 44 NO. 1 PRAC. LAW. 79, 79 (1998) (stating that "Innovation can play an important role in the marketplace by affecting both the pace and extent of new product development.").

[415] *See* Brett Frischmann, Innovations and Institutions: Rethinking the Economics of U.S. Science and Technology Policy, 24 VT. L. REV. 347, 348 (2008) (explaining how the market can be affected or modified by "R&D tax incentives").

[416] *See* Viral V. Acharya, Ramin P. Baghai, Krishnamurthy V. Subramanian, Labor Laws and Innovation, 56 J.L. & ECON. 997, 998 (investigating whether the legal framework governing the relationships between employees and their employers affects the extent of innovation in an

Intrapreneurial enterprises stimulate innovation and have a unique way of inciting market changes.[417] They have considerable resources and funding to invest in innovation and to attract and incentivize employees-intrapreneurs.[418] These innovation agents benefit from economies of experience that enables them to make large investments in knowledge procurement.[419] Yet, competitive pressures from other conglomerates and the will to "stay in the game," motivate intrapreneurial firms to free-ride and poach employee from each other, which increase litigation relating to confidential knowledge and constraints on employee mobility. Maintaining successful private-sector innovation necessitates a careful balance between the interests of intrapreneurial organizations, intrapreneurs, and society.[420]

This Article conceptually integrated the idea of "corporate entrepreneurship" with innovation theory and legal doctrines 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 employee-intrapreneurs on the market? While this paper did not provide definite answers to these question, 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.[421] 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

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economy).

[417] *Id.* at 298.

[418] *Id. See also* Becker et al., *supra* note 40, at 18-19. This Schumpeterian hypothesis that large firms are more innovative than small firms has been criticized. *See, e.g.*, William B. Gartner & Nancy M. Carter, *Entrepreneurial Behavior and Firm Organizing Processes*, *in* ZOLTÁN J. ÁCS & DAVID B. AUDRETSCH, HANDBOOK OF ENTREPRENEURSHIP RESEARCH 195 (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 establishes organizations.").

[419] BAUMOL, supra note 54, at 28. *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 (describing how entrepreneurial teams work within big firms to generate and refine new products).

[420] *See* LOBEL, *supra* note 21, at 77 (explaining British Economist Alfred Marshall's theory that the tendency for free labor markets to flourish in certain areas and ultimately contribute to knowledge spillover).

[421] *See* Muhammad Farrukh, Chong Wei Ying, Shaheen Mansori, *Intrapreneurial Behavior: An Empirical Investigation of Personality Traits*, 11 MGMT. & MARKETING: CHALLENGES FOR THE KNOWLEDGE SOCIETY 597-609 (2016) (examining some intrapreneurial traits).

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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