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# WHAT IS LEGAL INNOVATION?

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*Technological progress, along with the economic success it brings innovators, has transformed technological innovation into an object of admiration. The law supports and regulates technological and creative innovation in other fields, but is law itself an arena of innovation – of legal innovation? Do the concepts, doctrines, theories and techniques produced by the law encompass innovation? If so, does legal innovation share similar characteristics with other kinds of innovation? Can we learn something about the nature of legal innovation from the general field of innovation research? The legal discipline is more preoccupied with identifying innovation in other areas than in analyzing the characteristics of its own innovations. In this Essay I argue that legal innovation has similar characteristics to innovation in other areas, although it is no less impressive and influential. The phenomenon of legal innovation can and should attract more scientific attention.*

## INTRODUCTION

In recent years, the term “innovation” has become a successful brand. Technological progress, along with the economic success it brings innovators, has transformed innovation into an object of admiration. Everyone wants to leap ahead with a start-up company.<sup>1</sup> Tech companies attempt to attract creative minds to innovation-stimulating work environments.<sup>2</sup> The law, especially intellectual property law, supports and regulates technological and creative innovation.<sup>3</sup> Patent laws require that patents reflect “new” and “nonobvious” inventions.<sup>4</sup> Legal scholars attempt to use various branches of law to promote

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1. RICHARD RHODES, VISIONS OF TECHNOLOGY: A CENTURY OF VITAL DEBATE ABOUT MACHINES SYSTEMS AND THE HUMAN WORLD 21–24 (Richard Rhodes ed., 2000); GILI S. DRORI & AVIDA NETIVI, STEM IN ISRAEL: THE EDUCATIONAL FOUNDATION OF “‘START-UP NATION’” 3–6 (2013); DAN SENOR & SAUL SINGER, START-UP NATION: THE STORY OF ISRAEL’S ECONOMIC MIRACLE X (2009).

2. Timothy Butler & James Waldroop, *Job Sculpting: The Art of Retaining Your Best People*, 77 HARV. BUS. REV. 144, 148 (1999).

3. Gregory N. Mandel, *Left-Brain versus Right-Brain: Competing Conceptions of Creativity in Intellectual Property Law*, 44 U.C. DAVIS L. REV. 283, 288 (2010).

4. John F. Duffy, *Inventing Invention: A Case Study of Legal Innovation*, 86 TEX. L. REV. 1, 6 (2007) (describing these requirements in the US, Europe and the Far East).

innovation and growth in the economy and other areas.<sup>5</sup> But is the law itself an arena of innovation – of legal innovation? Do the concepts, doctrines, theories and techniques produced by the law encompass innovation? If so, does legal innovation share similar characteristics with other fields of innovation? Can we learn something about the nature of legal innovation from the research of innovation in other disciplines?

The legal discipline is more preoccupied with identifying innovation in other areas than in analyzing the characteristics of its own innovations. The characteristics of legal innovation are accorded relatively little attention by scholars of law.<sup>6</sup> The OECD's Frascati Manual, which enumerates a list of disciplines against which to examine innovation in research and development (R&D), included law as a subcategory of innovation research in the social sciences, but whereas it demonstrated what might constitute innovation in the arts, education, social sciences, and even humanities, it refrained from demonstrating the criteria for innovation in law.<sup>7</sup> The interest judges evince in the phenomenon of innovation is even more tenuous. Only in rare instances do judges accord the title "legal innovation" to a legal process that they are evaluating,<sup>8</sup> and sometimes they use it to label that which they deem excessive innovation.<sup>9</sup> Perhaps judges are too modest to describe their own novelties as "innovation," but they may either fear that their novelty will be considered "a pejorative."<sup>10</sup>

In this Essay I argue that legal innovation has similar characteristics to innovation in other areas although it is no less impressive and influential. I propose viewing legal innovation as an avenue of research to be examined within the context of the broader phenomenon of innovation. The phenomenon of legal innovation can and should attract more scientific attention just as innovation is explored in other disciplines. Part I will examine what innovation is and what we know about the process of innovation in non-legal disciplines. Part II will discuss

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5. See THE KAUFFMAN TASK FORCE ON L., INNOVATION & GROWTH, RULES FOR GROWTH: PROMOTING INNOVATION AND GROWTH THROUGH LEGAL REFORM (2011) for an example of the collection of articles.

6. Duffy, *supra* note 4, at 3 ("The existing scholarly treatments of legal change are invariably primitive. Legal change is treated as if it is something that just happens . . ."); Florian Möslin, *Legal Innovation in European Contract Law: Within and Beyond the (Draft) Common Frame of Reference*, in EUROPEAN PRIVATE LAW AFTER THE COMMON FRAME OF REFERENCE 173, 174–176 (Hans-W. Micklitz & Fabrizio Cafaggi eds., 2010) (reviewing the scant literature on the topic).

7. OECD, FRASCATI MANUAL 2015: GUIDELINES FOR COLLECTING AND REPORTING DATA ON RESEARCH AND EXPERIMENTAL DEVELOPMENT 59, 64–65, 67, 74–76 (2015), <https://www.oecd-ilibrary.org/docserver/9789264239012-en.pdf?expires=1615187308&id=id&accname=guest&checksum=9FBDD4D27930116A167FB0F5196F1DF2> [<https://perma.cc/2DCE-FJLY>].

8. *In re DES Cases*, 789 F. Supp. 552, 561 (E.D.N.Y. 1992) ("[M]ass torts prompted the next wave of doctrinal innovation . . .").

9. *McCleskey v. Zant*, 499 U.S. 467, 529 (1991) (Marshall, J., dissenting) ("Ironically, the majority seeks to defend its doctrinal innovation on the ground that it will promote respect for the 'rule of law.' Obviously, respect for the rule of law must start with those who are responsible for *pronouncing* the law.") (emphasis in original) (citation omitted).

10. *United States v. McKinney*, 919 F.2d 405, 421 (7th Cir. 1990), *abrogated by* *United States v. Spears*, 965 F.2d 262 (7th Cir. 1992); Robert F. Blomquist, *Thinking About Law and Creativity: On the 100 Most Creative Moments in American Law*, 30 WHITTIER L. REV. 119, 120 (2008).

the nature of legal innovation and show its similarities to the innovation process in other fields. Part III will suggest using tools from innovation research in other areas to deepen the understanding of the phenomenon of legal innovation. Part IV will illustrate the general insights with regard to legal innovation within the field of land law, an area of law generally deemed conservative and unamenable to innovation. I conclude with possible avenues for expanding the research of legal innovation in the future.

## I. WHAT IS INNOVATION?

Life and humans are constantly innovating. Humans create new things: products, services, ideas, works and inventions. Is every new thing an expression of “innovation”? The term “innovation” derives from the verb “to innovate,” which the dictionary renders, “to introduce new things, ideas, or ways of doing something.”<sup>11</sup> Innovation is the result of two primary components: an idea and its implementation. It is an action capable of altering reality.<sup>12</sup> The OECD’s Frascati Manual states that innovation relates to information that is novel, creative, uncertain, systematic and reproducible.<sup>13</sup> There is scarcely any field that does not involve innovation: medicine, management, teaching, media, transportation, security, and so on. The quest for innovation is the very heart of scientific research and artwork. As we shall see further on, innovation exists inside the field of law as well.

What motivates the innovator and what generates the success of his or her innovation? Society in general, and companies in particular, have a vested interest in promoting innovation due to the various benefits it engenders. Both academic bodies of other disciplines as well as companies now engage in researching the motives that drive innovation as well as methods of encouraging it.<sup>14</sup> Innovation is not merely the result of natural inclination, talent, or random epiphany, and it can find expression in the implementation of existing information, not necessarily new, produced by others.<sup>15</sup> Social interaction and data streaming between innovators from varying fields produce and enhance innovation.<sup>16</sup> Innovation is an extended process, not a one-time occurrence. It begins with an idea, but also requires time, resources and additional factors to bring about its

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11. *Innovate*, OXFORD ADVANCED AMERICAN DICTIONARY (2011), [https://www.oxfordlearnersdictionaries.com/definition/american\\_english/innovate?q=innovate](https://www.oxfordlearnersdictionaries.com/definition/american_english/innovate?q=innovate) [<https://perma.cc/H59Z-8E55>].

12. Jan Fagerberg, *Innovation: A Guide to the Literature*, in THE OXFORD HANDBOOK OF INNOVATION 1, 4 (Jan Fagerberg, David C. Mowery & Richard R. Nelson eds. 2006) (Defining innovation as the “first attempt to implement an idea in reality”).

13. OECD, *supra* note 7, at 46–48.

14. MARK DODGSON, DAVID M. GANN & AMMON SALTER, THE MANAGEMENT OF TECHNOLOGICAL INNOVATION: STRATEGY AND PRACTICE 177–80 (2d ed. 2008).

15. Fagerberg, *supra* note 12, at 9.

16. Laura G. Pedraza-Farina, *The Social Origins of Innovation Failures*, 70 SMU L. REV. 377, 400–10 (2017).

implementation.<sup>17</sup> Other directions of research focus on the creativity component that innovation entails.<sup>18</sup> As early as 1926, the British social psychologist Graham Wallas identified four stages inherent in every creative process: preparation, incubation, illumination and verification.<sup>19</sup> This theory has since been developed and used in numerous ways, and science now takes an extensive interest in the components of creativity and means of enhancing them.<sup>20</sup> Neuroscientists are trying to identify the physiological aspects of creativity within the human brain.<sup>21</sup> Behavioral studies indicate that a concrete problem irking the innovator is what breeds creativity, and in some cases, vulnerability is the birth of creativity.<sup>22</sup>

Notwithstanding the respect, indeed admiration, that innovators attract, innovation also sparks fear, apprehension and shock.<sup>23</sup> Joseph Schumpeter, one of the originators of the scientific study of innovation, claimed that combatting the human tendency to cling to current reality and shy away from change is an integral part of the innovation process.<sup>24</sup> Innovation requires of those who have grown accustomed to a given reality that they relinquish investment and achievements to which they have become accustomed.<sup>25</sup> As far back as the early 1970s, the thinker Alvin Toffler, in his book *Future Shock*, foresaw one of today's most common responses to innovation. He predicted that many people would have difficulty acclimating to the dizzying spike in the rate of change that modern society would face. He defined the psychological state of those who would have trouble adjusting to the tempo of innovation as a state of shock—future shock.<sup>26</sup> Even if resistance to innovation may be perceived, sometimes rightly, as an expression of apprehension, fear, or shock devoid of a practical basis, innovation in any area may have real negative ramifications as well, and there are some innovations that should preferably be avoided or passed up.<sup>27</sup> The passion for

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17. OECD, OSLO MANUAL: PROPOSED GUIDELINES FOR COLLECTING AND INTERPRETING TECHNOLOGICAL INNOVATION DATA 22–24 (1997); Teresa M. Amabile, Constance Noonan Hadley & Steven J. Kramer, *Creativity Under the Gun*, 80 HARV. BUS. REV. 52, 60–61 (2002).

18. Mandel, *supra* note 3, at 333–43 (describing differences in concepts of creativity from the perspective of neurobiology, psychology, artwork and scientific research).

19. GRAHAM WALLAS, *THE ART OF THOUGHT* 10, 80 (Jonathan Cape 1931) (1926).

20. Eugene Sadler-Smith, *Wallas' Four-Stage Model of the Creative Process: More Than Meets the Eye?* 27 CREATIVITY RSCH. J. 342, 342 (2015).

21. Rex E. Jung et al., *The Structure of Creative Cognition in the Human Brain*, 7 FRONTIERS IN HUM. NEUROSCIENCE 1, 8–11 (2013).

22. BRENÉ BROWN & DARING GREATLY: HOW THE COURAGE TO BE VULNERABLE TRANSFORMS THE WAY WE LIVE, LOVE, PARENT, AND LEAD 34 (2012).

23. Kim A. Taipale, *Technology, Security and Privacy: The Fear of Frankenstein, the Mythology of Privacy and the Lessons of King Ludd*, 7 YALE J.L. & TECH. 123, 137 (2004).

24. JOSEPH A. SCHUMPETER, *THE THEORY OF ECONOMIC DEVELOPMENT: AN INQUIRY INTO PROFITS, CAPITAL, CREDIT, INTEREST AND THE BUSINESS CYCLE* 86 (1949); Fagerberg, *supra* note 12, at 6, 9; RHODES, *supra* note 1, at 22–23.

25. Nuno Garoupa & Thomas S. Ulen, *The Market for Legal Innovation: Law and Economics in Europe and the United States*, 59 ALA. L. REV. 1555, 1587 (2008).

26. ALVIN TOFFLER, *FUTURE SHOCK* 9–10 (1970).

27. HANNA ARENDT, *THE HUMAN CONDITION* 3 (2d ed., 1998); Sofia Ranchordas, *Does Sharing Mean Caring? Regulating Innovation in the Sharing Economy*, 16 MINN. J.L. SCI. & TECH. 413, 445 (2015).

novelty, and the gains that innovation generates, may blind the innovators to its potential harm.<sup>28</sup>

Innovation produces varying forms of novelties, distinguishable by the intensity of their innovation and the level of influence they exert on society. The literature dealing with commercial innovation differentiates cumulative or negligible innovation from radical or revolutionary innovation.<sup>29</sup> The attempt to appraise innovation confronts several difficulties. The emergence and impact of innovation are often complex processes which extend over time, and are sometimes the result of inter-disciplinary activity; it is therefore difficult to isolate all the components of innovation and evaluate their unique contributions to the innovative result.<sup>30</sup> Moreover, the appraisal of innovation focuses on measurable data such as output (scientific publications, patents), expenses, and income. The focus on measurable or profitable avenues of innovation does not necessarily reflect non-measurable dimensions of innovation.<sup>31</sup>

We have seen that research in different disciplines is interested in the broader phenomenon of innovation and tries to decipher what are the incentives for innovation and evaluate the results of innovation. We will now examine whether general characteristics of the innovation phenomenon also exist in the field of law.

## II. LEGAL INNOVATION

Is the law itself also an arena of innovation, legal innovation? The answer to this question may be influenced by various conceptions of the independent character of the discipline of law. Thomas Ulen claimed that it is only in recent decades that law has become a “science,” and that only the use of research methods recognized in other sciences, such as theoretical analysis and empirical experimentation, will lead to scientific innovation that might justify the establishment of a Nobel Prize for the study of law.<sup>32</sup> A more optimistic conception of the legal discipline can identify therein characteristics typical of innovation.<sup>33</sup> Legal innovation does not necessarily happen on podiums or in the writings of theoreticians, but rather it comes about in the day-to-day reality of lawmakers

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28. Robert A Edgell & Roland Vogl, *A Theory of Innovation: Benefit, Harm, and Legal Regimes*, 5 *LAW, INNOVATION & TECH.* 21, 22–24 (2013).

29. Fagerberg, *supra* note 12, at 7.

30. Keith Smith, *Measuring Innovation*, in *THE OXFORD HANDBOOK OF INNOVATION* 148, 150 (Jan Fagerberg, David C. Mowery & Richard R. Nelson eds., 2006).

31. *Id.* at 151.

32. Thomas S. Ulen, *A Nobel Prize in Legal Science: Theory, Empirical Work, and the Scientific Method in the Study of Law*, 2002 *U. ILL. L. REV.* 875, 916–917 (2002).

33. Hanoch Dagan, *Law as an Academic Discipline*, in *STATELESS LAW: EVOLVING BOUNDARIES OF A DISCIPLINE* 43, n.53 (Helge Dedek & Shauna Van Praagh eds., 2015) (noting the uniqueness of the legal discipline is in the synthesis between extra-legal insights and the normative system); Hanoch Dagan, Roy Kreitner & Tamar Kricheli-Katz, *Theory for Legal Empiricists*, 48 *LAW & SOC. INQUIRY* 292, 305 (2018) (describing the unique contribution of a combination of legal theory and empirical legal research).

and implementers of law (such as legislators, magistrates or attorneys).<sup>34</sup> It finds expression in the creation or implementation of legal norms and concepts, in the establishment of institutions that create and implement laws and in the formulation of legal processes and standard procedures.<sup>35</sup> Law is a dynamic discipline that is constantly innovating its sub-branches. Some branches of law are the modern development of contemporary times, such as consumer protection laws,<sup>36</sup> class actions,<sup>37</sup> or measures for fighting money laundering.<sup>38</sup> Yet, even family law, which has supported human society for thousands of years, has been altered by far-reaching legal innovations arising from changes that occurred in the modern family and in reproduction technology.<sup>39</sup> All these channels are arenas that can produce an *ex nihilo* legal innovation, even if a Nobel Prize has not yet been established for this form of innovation.

Law is a very ancient discipline and many of its most revolutionary innovations were born at times when there simply did not exist any means of measuring innovation, or even the aspiration to measure it. Can anyone minimize the innovative value of ideas such as the Ten Commandments<sup>40</sup> or the need for judges?<sup>41</sup> Can anyone second-guess the tremendous contribution made by the development of the “promissory note” as a means of payment,<sup>42</sup> or the emergence of the innovative idea of a company with a separate legal identity?<sup>43</sup> Some of the innovations introduced in the field of law throughout the course of human history are no less astonishing than technological innovations and the list is very

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34. Andrew Tutt, *A Fragment on Legal Innovation*, 62 BUFF. L. REV. 1001, 1022–24 (2014) (attorneys as initiators of legal innovation); Stephen Clowney, *Property in Law: Government Rights in Legal Innovations*, 72 OHIO ST. L.J. 1, 2–8 (2011) (reviewing the literature that views the government as an initiator of legal innovation, proposing that it grant intellectual property rights in this innovation); Bruce H. Kobayashi & Larry E. Ribstein, *Law as Product and Byproduct*, 9 J.L. ECON. & POL’Y 521, 554–555 (2013) (proposing the endowment of intellectual property rights to private legal innovation enterprises).

35. Giovanni Pascuzzi, *Cognitive Techniques of Legal Innovation*, in LAW, DEVELOPMENT AND INNOVATION 15, 18–20 (Giuseppe Bellantuono & Fabiano Teodoro Lara eds., 2016) (describing various channels of legal innovation); William D. Henderson, *Innovation Diffusion in the Legal Industry*, 122 DICK. L. REV. 395, 400–01 (2018) (defining legal evolution as applied research and recommends learning from other disciplines how to accelerate the adoption of its productivity-enhancing innovations).

36. LIZABETH COHEN, A CONSUMERS’ REPUBLIC: THE POLITICS OF MASS CONSUMPTION IN POSTWAR AMERICA 20–24 (2003); Ewoud Hondius, *The Innovative Nature of Consumer Law*, 35 J. CONSUMER POL’Y 165, 167 (2012) (explaining why consumer protections laws are innovative).

37. David Marcus, *The History of the Modern Class Action-Part I: Sturm Und Drag 1953-1980*, 90 WASH. U. L. REV. 587, 600–04 (2013).

38. Liliya Gelemerova, *On the Frontline against Money-Laundering: The Regulatory Minefield*, 52 CRIME, L. & SOC. CHANGE 33, 34–35 (2009).

39. Marsha Garrison, *The Technological Family: What’s New and What’s Not*, 33 FAM. L. Q. 691, 691–692, 701 (1999).

40. *Exodus* 34:27–28.

41. *Exodus* 18:13–23.

42. Judith A. Shapiro, *Shetar’s Effect on English Law – A Law of the Jews Becomes the Law of the Land*, 71 GEO. L. J. 1179, 1182–84 (1983) (creation of the “promissory note” in the Hebrew Law in the year 500 and its absorption in the Anglo-Saxon Law after the Norman Conquest).

43. SALOMON V. SALOMON & CO LTD [1897] AC 22 [HL] 51–54; Francisco Reyes, Erik Vermeulen, *Company Law, Lawyers and “Legal” Innovation: Common Law versus Civil Law*, 28 BANKING & FIN. L. REV. 433, 438, 448 (2013); Ron Harris, *A New Understanding of the History of Limited Liability: An Invitation for Theoretical Reframing*, 16 J. INSTITUTIONAL ECON. 643, 654–660 (2020).

long: the emergence of legal instruments (law, constitution, courts, deed, company, trust, codex, condominium, registry of rights), the emergence of abstract legal ideas and concepts (good faith, tort liability, human rights, environmental protection, consumer protection, intellectual property), the emergence of judicial legal doctrines (equity, estoppel), the emergence of legal process (the adversarial method, witnesses, jurors, class action) and the emergence of research methods and legal thought (law and economy, law and society, a critical approach to law, a feministic, historical, empirical or psychological analysis of law).<sup>44</sup> The development of these innovations required a significant degree of creativity, as well as persistence and the ability to confront opposition.<sup>45</sup> It typically did not emerge all at once; rather, it evolved in a multi-stage creative process. In many instances, it arose not only from legal activity, but from creativity and innovation in other fields or from the need to address changes or innovations that emerged outside of the law.<sup>46</sup> Legal innovation also stemmed from competition over resources,<sup>47</sup> and from the inclination of some legal scholars towards a legal realism that impacts reality.<sup>48</sup> All the innovations mentioned have impacted reality to a degree comparable to that of the influence of technological and scientific innovations.

At first glance, to a layman, and maybe even to jurists, it appears that innovation is not as conspicuous in the field of law as in other disciplines.<sup>49</sup> The impact factor of scientific publications in the field of law is low in comparison with other areas of research.<sup>50</sup> Legal scholars often complain that only a small group of jurists take an interest in their studies.<sup>51</sup> Nonetheless, the limited scope of the discourse does not attest to the absence of legal innovation. It may simply be a case of poor public relations for legal innovation.

### III. RESEARCH OF LEGAL INNOVATION

In the general field of innovation research, there is room for a deep and systematic investigation of legal innovation. An attempt can be made to define,

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44. Garoupa & Ulen, *supra* note 25, at 1564–66.

45. *Id.* at 1613.

46. Lyria Bennett Moses, *Regulating in the Face of Sociotechnical Change*, in *THE OXFORD HANDBOOK OF LAW, REGULATION AND TECHNOLOGY* 573, 574 (Roger Brownsword, Eloise Scotford & Karen Yeung eds. 2017) (“There is a broad agreement in the literature that new technologies create challenges for law and regulation.”).

47. Garoupa & Ulen, *supra* note 25, at 1558–59, 1598–1601 (resource competition as a cause of academic innovation); Roberta Romano, *The States as a Laboratory: Legal Innovation and State Competition for Corporate Charters*, 23 *YALE J. ON REG.* 209, 211, 214 (2006) (competition between countries in attracting companies as an incentive for legal innovation in company law).

48. Garoupa & Ulen, *supra* note 25, at 1609–10.

49. Duffy, *supra* note 4, at 71–72 (“The legal field suffers from such poor incentives for encouraging rigorous development and testing of new law, and even where actors have some incentive, they confront a dearth of tools for accurately measuring the social value of legal innovation.”).

50. Claudia Contreras, Gonzalo Edwards & Alejandra Mizala, *The Current Impact Factor and the Long-Term Impact of Scientific Journals by Discipline: A Logistic Diffusion Model Estimation*, 69 *SCIENTOMETRICS* 689, 694 (2006).

51. Larry A. DiMatteo, *Human Capital and the Search for Originality*, 16 *BERKELEY BUS. L.J.* 267, 277–78, 317 (2019).

appraise and maybe even measure the rate of legal innovation, its geographical dispersion, its scope of influence and the processes of its formation. Jurists can intuitively sense or gauge the difference between “a major innovation” such as the establishment of a new field of law, or a new concept that impacts its generation, on one hand, and a “minor innovation,” such as criticism of a judicial decision on a narrow matter, on the other.<sup>52</sup> They sometimes tend to overestimate the degree of innovation in their own area of work.<sup>53</sup> Yet I do not know any systematic scientific attempt to characterize, evaluate, catalog or measure legal innovation. Indeed, the legal studies discipline has adopted evaluation methods common in other fields of academic research to measure the impact of legal academic products on the discourse of scholars, or at the most, of courts.<sup>54</sup> Even if we assume that there is a correlation between the scope of the mention of a text and the degree of its innovation, and this is an assumption that is highly questionable, the impact factor and other similar methods prioritize innovations that preoccupy legal scholars or courts, but does not necessarily reflect the innovation’s impact on society at large. It relies on innovations reflected in quantifiable texts (articles and judgments, in specific languages), but does not tap the full gamut of factors that can attest to the innovation’s conceptual power or the strength of its impact.<sup>55</sup>

In other areas of innovation, technological and scientific, there is an attempt to measure or appraise the innovation.<sup>56</sup> One of the tools of innovation research in non-legal content areas is the development of innovation taxonomies that attempt to distinguish between types of innovation by branch, geographical dispersion, causes of innovation, results, and other distinguishing factors.<sup>57</sup> Taxonomies are familiar in the field of law as well, but here they do not focus on

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52. Garoupa & Ulen, *supra* note 25, at 1565–66; LAWRENCE M. FRIEDMAN, *THE LEGAL SYSTEM: A SOCIAL SCIENCE PERSPECTIVE* 276–79 (1975) (examining the extent of innovation of change in law based on its social ramifications).

53. FRIEDMAN, *supra* note 52, at 271, (“Jurists...will naturally overestimate the impact of their work.”); Garoupa & Ulen, *supra* note 25, at 1558 (“[L]aw and economics has been one of the most important developments in North American legal scholarship of the twentieth century . . . .”); S. I. Strong, *Third Party Intervention and Joinder as of Right in International Arbitration: An Infringement of Individual Contract Rights or a Proper Equitable Measure?*, 31 VAND. J. TRANSNAT’L L. 915, 972 (1998) (“The Netherlands is often at the forefront of legal innovations.”).

54. Ronen Perry, *The Relative Value of American Law Reviews – A Critical Appraisal of Ranking Method*, 11 VA. J.L. & TECH. 1, 23 (2006) (measuring citations in legal periodicals, non-legal periodicals, and in supreme court rulings); Garoupa & Ulen *supra* note 25, at 1569–73 (quotations as a tool for gauging the influence of “law and economy” on the academic legal discourse in the US); Michael Heise, *An Empirical Analysis of Empirical Legal Scholarship Production, 1990-2009*, 2011 U. ILL. L. REV. 1739, 1741–46 (2011) (quotations as a tool for indication of said influence of “empirical legal research”).

55. Ronen Perry, *The Relative Value of American Law Reviews: Refinement and Implementation*, 39 CONN. L. REV. 1, 5 (2006) (“The academic quality of a specific article is a function of different variables, such as creativity, innovation...It is impossible not only to measure these variables with scientific precision . . . .”).

56. See *supra* notes 29–31 and accompanying text.

57. See, e.g., Keith Pavitt, *Sectoral Patterns of Technical Change: Towards a Taxonomy and a Theory*, 13 RSCH. POL’Y 343, 353–65 (1984); Fulvio Castellacci, *Technological Paradigms, Regimes and Trajectories: Manufacturing and Service Industries in a New Taxonomy of Sectoral Patterns of Innovation*, 37 RSCH. POL’Y 978, 983–91 (2008); Roberta Capello & Camilla Lenzi, *Territorial Patterns of Innovation: A Taxonomy of Innovative Regions in Europe*, 51 ANNALS REG’L SCI. 119, 145–46 (2013).

classifying legal innovation.<sup>58</sup> Many legal studies examine specific areas of legal innovation, or what a scholar deemed to be legal innovation,<sup>59</sup> and there are also studies that compile multiple examples of legal innovation<sup>60</sup> or attempt to trace the distribution channel of such innovation.<sup>61</sup> The data collected in these studies, as in future studies, can serve as raw material for constructing a taxonomy of legal innovation. Such a taxonomy may classify, by various criteria, the diverse forms of legal innovation: abstract legal concepts or ideas (such as human rights), judicial legal doctrines (such as equity), legal instruments (such as a constitution or deed), legal proceedings (such as a class action), technological improvement of legal mechanisms that entail changes in a legal concept (such as registration of property rights), or scientific tools for legal analysis (an economic approach, empirical research). The criteria for comparison may be the type of innovation (an abstract concept, a technological improvement); the branch of law in which the innovation emerged (torts, contracts); the disciplinary source (an idea inherent to the field of law, an idea borrowed from a different discipline, or integration of ideas from multiple disciplines); the incentive for the change (a practical problem, technology, economic profit, academic research); the identity of the innovator (legislator, judge, researcher, attorney, other);<sup>62</sup> the character of the innovation process (a sudden flash, gradual development); its duration (number of years, decades, centuries); the scope of its geographical impact (universal, local); and its areas of fundamental impact (fields of law, society, scientific research).

Legal innovation research can assist in understanding legal innovation and provide tools to support its development. It may enhance the focus of legal research and extend the scope of impact of its products. Moreover, it may integrate into the general puzzle of innovation research. The development of such a field is a complex endeavor that will necessitate the use of scholarly tools developed in innovation research in other areas, as well as an examination of different legal fields. This Essay, of course, does not pretend to carry out this task. Rather, in what follows, I will try to illustrate the phenomenon of legal innovation in the

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58. See, e.g., Peter Birks, *Equity in the Modern Law: An Exercise in Taxonomy*, 26 U.W. AUSTL. L. REV. 1, 3–7 (1996); Ugo Mattei, *Three Patterns of Law: Taxonomy and Change in the World's Legal Systems*, 45 AM. J. COMP. L. 5, 5–7 (1997); Hanoch Dagan, *Legal Realism and the Taxonomy of Private Law*, in STRUCTURE AND JUSTIFICATION IN PRIVATE LAW: ESSAYS FOR PETER BIRKS 147, 160–64 (Charles Rickett & Ross Grantham eds., 2008); Emily Sherwin, *Legal Taxonomy*, 15 LEGAL THEORY 25, 25–31 (2009); Rafal Mańko, *Legal Taxonomy and the Political: A Central European Perspective*, in LAW, SPACE AND THE POLITICAL: AN EAST-WEST PERSPECTIVE 13, 27–28 (Paulina Bieś-Srokosz et al. eds., 2019).

59. See *supra* notes 46–48 and accompanying text.

60. Arthur Lenhoff, *America's Legal Inventions Adopted in Other Countries*, 1 BUFF. L. REV. 118, 120, 124, 128 (1951) (listing a series of legal inventions conceived in the US including the written constitution, insurance company surveillance, homestead legislation and the statutory lien); Blomquist, *supra* note 10, at 146–52 (ranking the 100 most striking examples of creativity in US law).

61. Michal Shur-Ofry, Gadi Fibich & Shira Green, *The Diffusion of Legal Innovation – Insights from Mathematical Modeling*, 52 CORNELL INT'L L.J. 313, 318–20 (2019) (examining diffusion patterns of legal innovations); Thomas Laux, *Qualitative Comparative Analysis as a Method for Innovation Research: Analysing Legal Innovations in OECD Countries*, 40 HIST. SOC. RSCH. 79, 89–101 (2015) (proposing a system of analysis for examining the dispersion of the legal innovation regulating equal pay for women in the OECD countries).

62. Duffy, *supra* note 4, at 3–4 (proposing a similar analysis of the sources of legal innovation).

field of land law, an area of law generally deemed conservative and unamenable to innovation.

#### IV. A TEST CASE: LEGAL INNOVATION - IN LAND LAW

What was said about legal innovation in general is all the more applicable to land law, which is generally considered a conservative branch of law in which innovation is uncommon.<sup>63</sup> As early as the most ancient societies, land was a central asset in human life and society; therefore, major mechanisms of property regulation were “invented” thousands of years ago.<sup>64</sup> The recognition of private ownership, the regulation of common ownership, and the treatment of adverse possession as a source of ownership were familiar concepts in ancient legal systems.<sup>65</sup> The concept of expropriation for public use, and even the inherent limitations, have been known for thousands of years.<sup>66</sup> Prima facie, it might appear that this age-old branch of law is not the appropriate venue for investigating the modern phenomenon of legal innovation.

Nonetheless, in the course of human history, legal innovations have also emerged in land law. The development of the trust, for instance, ascribed to the novel creativity of the equity court in England, was an innovative idea with extensive and diverse impact. Its development has endured for several centuries and followed from the emergence, centuries prior, of the Islamic Waqf.<sup>67</sup> At some point it diverged from the field of land law and was absorbed into company law.<sup>68</sup>

The notion of public registration of land transactions, as well, dates back thousands of years. It is alluded to in the Biblical story of the purchase of the Cave of Machpela by Abraham “in the presence of the Hittites, in the presence of all who went in at the gate of his city,”<sup>69</sup> and it was known in the Ancient Near East and in Greece.<sup>70</sup> Land ledgers were a familiar concept in Central European

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63. John R. Nolon, *Champions of Change: Reinventing Democracy through Land Law Reform*, 30 HARV. ENVTL. L. REV. 1, 2 (2006) (“Our legal system exhibits great resiliency in the face of change[.]”).

64. Robert C. Ellickson, Charles DA Thorland, *Ancient Land Law: Mesopotamia, Egypt, Israel*, 71 CHI.-KENT L. REV. 321, 324 (1995); HENRY SCHAEFFER, HEBREW TRIBAL ECONOMY AND THE JUBILEE III–V (1922).

65. Ellickson et al., *supra* note 64, at 336–37, 366–67, 384.

66. *1 Kings* 21:1–16 (the Naboth the Jezreelite vineyard affair); Ora R. Sheinson, *Lessons from the Jewish Law of Property Rights for the Modern American Takings Debate*, 26 COLUM. J. ENVTL. L. 483, 499 (2001) (comparing the land laws in ancient Jewish law and in American law).

67. Monica M. Gaudiosi, *The Influence of the Islamic Law of Waqf on the Development of the Trust in England: The Case of Merton College*, 136 U. PA. L. REV. 1231, 1240–50 (1988).

68. John Morley, *The Common Law Corporation: The Power of the Trust in Anglo-American Business History*, 116 COLUM. L. REV. 2145, 2151–54 (2016).

69. *Genesis* 23:18.

70. Ellickson, *supra* note 64, at 384–87; Rachel Zelnick-Abramovitz, *Public Registers of Land Sales in Ancient Greece*, in *SALE AND COMMUNITY, DOCUMENTS FROM THE ANCIENT WORLD: INDIVIDUALS’ AUTONOMY AND STATE INTERFERENCE IN THE ANCIENT WORLD, PROCEEDINGS OF A COLLOQUIUM SUPPORTED BY THE UNIVERSITY OF SZEGED, BUDAPEST 5-8.10.2012*, 41, 62–63 (Éva Jakab ed., 2015).

towns as early as the fourteenth century.<sup>71</sup> In 1086, the Norman Conquest of England spawned the birth of the Domesday Book,<sup>72</sup> but the first attempt to develop a national deed registry began only pursuant to the legislation of the 1535 Statute of Enrollments.<sup>73</sup> In the seventeenth century, the U.S. colonies (later to become states) also began instituting these registries.<sup>74</sup> Another 300 years or so elapsed before the innovative and noteworthy emergence of the title registration system, and its implementation in Southern Australia by Robert Torrens in 1857.<sup>75</sup> This system was based on technological developments at that time in the field of surveying, enabling the registration to be governed by precise cadastral mapping.<sup>76</sup> Within a few decades it had spread from Oceania to America, Europe and all across the globe.<sup>77</sup>

The latest legal innovation in this field is the idea of applying a new technology, Blockchain, to implement a far-reaching, innovative idea: the creation of a decentralized land registration system not dependent on any authority or primary entity.<sup>78</sup> The utopic vision of Blockchain enthusiasts is to create universal and autonomous public ledgers that do not require trust clerks and agents to manage them (a trustless public ledger).<sup>79</sup> To the extent that technology enables the implementation of this idea, it may drastically change the real estate market and land laws. Such change would be intensely innovative, and it is therefore no surprise that innovation enthusiasts bask in its virtues.<sup>80</sup> Yet many of the studies that have examined in depth the adoption of Blockchain for land registration share a cautious skepticism regarding the technology's adaptation to this field.<sup>81</sup>

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71. In Vienna (since 1369), Prague (since 1377), Budapest (since 1686), Munich, Hamburg, Bremen and Lübeck (since 1440). RICHARD R. POWELL, *REGISTRATION OF THE TITLE TO LAND IN THE STATE OF NEW YORK* 288 (1938).

72. FREDERICK WILLIAM MAITLAND, *DOMESDAY BOOK AND BEYOND—THREE ESSAYS ON THE EARLY HISTORY OF ENGLAND 1–4* (1897).

73. Philip Hamburger, *The Conveyancing Purposes of the Statute of Frauds*, 27 AM. J. LEGAL HIST. 354, 356–57 (1983).

74. RICHARD R. POWELL & PATRICK J. ROHAN, *POWELL ON REAL PROPERTY* Vol. 14, Ch. 82-6 (1998).

75. ROBERT T. J. STEIN & MARGARET A. STONE, *TORRENS TITLE* 17-21 (1991).

76. ELIZABETH BAIGENT & ROGER J. P. KAIN, *THE CADASTRAL MAP IN THE SERVICE OF THE STATE: A HISTORY OF PROPERTY MAPPING* 342–44 (1984).

77. Frederick B. McCall, *The Torrens System—After Thirty-Five Years*, 10 N.C. L. REV. 329, 329–30 (1932); John L. McCormack, *Torrens and Recording: Land Title Assurance in the Computer Age*, 18 WM. MITCHELL L. REV. 61, 72–73 (1992).

78. Rosa M. Garcia-Teruel, *Legal Challenges and Opportunities of Blockchain Technology in the Real Estate Sector*, 12 J. PROP., PLAN. & ENV'T L. 129, 130 (2020).

79. Avi Spielman, *Blockchain: Digitally Rebuilding the Real Estate Industry* 33, 42–44 (2016) (Master's thesis, Massachusetts Institute of Technology); Joshua A.T. Fairfield, *Bitproperty*, 88 S. CAL. L. REV. 805, 813–16 (2015).

80. Angela Walch, *The Path of the Blockchain Lexicon (And the Law)*, 36 REV. BANKING & FIN. L. 713, 732 (2017) (“It is very easy for supporters of a complex new technology or practice to hype the perks of the technology . . .”).

81. See, e.g., Garry Gabison, *Policy Considerations for the Blockchain Technology Public and Private Applications*, 19 SMU SCI. & TECH. L. REV. 327, 345 (2016); Garcia-Teruel, *supra* note 78, at 141–43; Spielman, *supra* note 79, at 60; Nicolás Nogueroles Peiró & Eduardo J. Martínez García, *Blockchain and Land Registration Systems*, 6 EUROPEAN PROP. L.J. 296, 319 (2017); Victoria L. Lemieux, *Evaluating the Use of Blockchain in Land Transactions: An Archival Science Perspective*, 6 EUROPEAN PROP. L.J. 1, 48–49 (2017).

Another innovative development in the field of land law was the formulation of condominium law. This innovation stemmed from the urbanization process that characterized Europe and America from the start of the industrial revolution,<sup>82</sup> and which has since expanded across the globe. Urbanization brought on the convergence of strangers in city condominiums for purposes of residence or occupation.<sup>83</sup> The new social need was what engendered legal innovation, which gave rise to a new branch of land law: condominium law.<sup>84</sup> The legal innovation in this field, too, lagged decades or even centuries behind the actual development of condominiums. The first modern laws in this field were legislated as late as the twentieth century,<sup>85</sup> but upon their legislation, it was rightfully said of them in 1963 that “[s]eldom have hard-nosed lawmakers greeted innovation more cordially than they have greeted the condominium.”<sup>86</sup> The condominium’s legal form now influences the development of cities.<sup>87</sup>

Just as condominium laws separated the property rights to different condominium units, the multi-level development of urban space created the need to separate the property rights in various levels of urban land, based on usage type. The genesis of the legal innovation in this area was marked by the emergence of air rights in the twentieth century,<sup>88</sup> and, in the last two decades, by the development of legal conceptual possibility of dividing the strata of land into independent three-dimensional units.<sup>89</sup>

The twentieth century brought to the field of land law a rush of innovation that blazed new trails. Salient, though by no means exhaustive, examples of this

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82. See William K. Kerr, *Condominium—Statutory Implementation*, 38 ST. JOHN’S L. REV. 1, 3–5 (1963).

83. Louis Wirth, *Urbanism as a Way of Life*, 44 AM. J. SOCIO. 1, 16–17 (1938).

84. J. Leyser, *The Ownership of Flats—A Comparative Study*, 7 INT’L & COMPAR. L.Q. 31, 31 (1958).

85. CORNELIUS VAN DER MERWE (ED.), *EUROPEAN CONDOMINIUM LAW* 2223 (2015); Curtis J. Berger, *Condominium: Shelter on a Statutory Foundation*, 63 COLUM. L. REV. 987, 1001–02 (1963); Leyser, *supra* note 84, at 33–39.

86. Berger, *supra* note 85, at 987.

87. Gillad Rosen & Alan Walks, *Rising cities: Condominium Development and the Private Transformation of the Metropolis*, 49 GEOFORUM 160, 168 (2013); Lei Chen & Mark D. Kielsgard, *Evolving Property Rights in China: Patterns and Dynamics of Condominium Governance*, 2 CHINESE J. COMPAR. L. 21, 21–22 (2013); Douglas C. Harris, *Condominium and the City: The Rise of Property in Vancouver*, 36 LAW & SOC. INQUIRY 694, 721 (2011) (“Vancouver without condominium would be very different from the city that has emerged.”); CATHY SHERRY, *STRATA TITLE PROPERTY RIGHTS: PRIVATE GOVERNANCE OF MULTI-OWNED PROPERTIES* 9–10 (2017)

88. Herbert Becker, *Subdividing the Air: A New Method of Acquiring Air Rights*, 9 CHI.-KENT L. REV. 40, 40, 45–47 (1931); Eugene J. Morris, *Air Rights are “Fertile Soil”*, 1 URB. LAW. 247, 257, 261–63 (1969); Robert R. Wright, *The Model Airspace Act: Old and New Law for Contemporary Land Use Problems*, 1972 LAW & SOC. ORDER 529, 539–44 (1972); James M. Pedowitz, *Transfers of Air Rights and Development Rights*, 9 REAL PROP., PROB. & TR. J. 183, 186, 192–96 (1974); Air Space Act, SNB 1982 c A-7.01 (replaced by the Air Space Act, RSNB 2011, c 109); Franklin O. Leger, *Air Rights and the Air Space Act*, 34 U.N.B. L.J. 39, 47–52 (1985) (stating backstory to Canada’s air space legislation involving a multi-story development project in Saint John, New Brunswick).

89. Haim Sandberg, *Three-Dimensional Partition and Registration of Subsurface Space*, 37 ISR. L. REV. 119, 134–35 (2003); Amnon Lehari, *The Future of Property Rights: Digital Technology in the Real World, in DISRUPTIVE TECHNOLOGY, LEGAL INNOVATION, AND THE FUTURE OF REAL ESTATE* 59, 69–72 (Amnon Lehari, Ronit Levine-Schnur eds., 2020).

include the recognition of native rights,<sup>90</sup> the emergence of planning and construction law in general and zoning in particular,<sup>91</sup> and the incorporation of environmental considerations into the regulation of land usage.<sup>92</sup> As a matter of fact, in recent years, technological innovations have brought innovative ideas to land law with unusual velocity compared to the tempo that hitherto characterized the field. The development of sharing platforms like Airbnb,<sup>93</sup> electronic conveyancing systems<sup>94</sup> or Geographic Land Information Systems (GIS),<sup>95</sup> are just few examples. The interval between one development and another has been a mere several years, not necessarily decades or centuries. In 2003, a book summarizing the development of geographic information systems stated that one of the future goals of development of the field was “a mobile future.”<sup>96</sup> Now, in 2021, this forecast has turned into reality. The future is already here.

The examples thus far presented demonstrate how, even in the ostensibly conservative field of land law, original and high-impact processes of legal innovation have evolved. Each of the legal innovations in this field has unique characteristics, but the innovation process that has yielded them raises questions relevant to innovations in any field and may be classified in a potential taxonomy of innovation according to the type of innovation (an abstract concept, a technological improvement); the disciplinary source (an idea inherent to the field of law, an idea borrowed from a different discipline, or integration of ideas from multiple disciplines); the incentive for the change (a practical problem, technology, economic profit, academic research); the identity of the innovator (legislator, judge, researcher, attorney, other); the character of the innovation process (a sudden flash, gradual development); its duration (number of years, decades, centuries); the scope of its geographical impact (universal, local); and its areas of fundamental impact (fields of law, society, scientific research).

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90. JÉRÉMIE GILBERT, *INDIGENOUS PEOPLES' LAND RIGHTS UNDER INTERNATIONAL LAW: FROM VICTIMS TO ACTORS XI–XII* (2d ed., 2016); Siegfried Wiessner, *Rights and Status of Indigenous Peoples: A Global Comparative and International Legal Analysis*, 12 HARV. HUM. RTS. J. 57, 61 (1999).

91. John F. Hart, *Colonial Land Use Law and its Significance for Modern Takings Doctrine*, 109 HARV. L. REV. 1252, 1252–53, 1259–81 (1996); Robert H. Nelson, *Comment A Private Property Right Theory of Zoning*, 11 URB. LAW. 713, 714–16 (1979).

92. Michael F. Reilly, *Transformation at Work: The Effect of Environmental Law on Land Use Control*, 24 REAL PROP. PROB. & TR. J. 33, 33–34 (1989).

93. SHELLY KREICZER-LEVY, *DESTABILIZED PROPERTY: PROPERTY LAW IN THE SHARING ECONOMY* 4–5 (2019); Chad Marzen, Darren A. Prum & Robert J. Aalberts, *The New Sharing Economy: The Role of Property, Tort, and Contract Law for Managing the Airbnb Model*, 13 N.Y.U. J. L. & BUS. 295, 298–99 (2017).

94. The Land Registration Act 2002 § 91–95 (U.K.); Haim Sandberg, *Real Estate E-conveyancing: Vision and Risks*, 19 INFO. & COMM'NS TECH. L. 101, 105–07 (2010); Michael E. Doversberger, *Conveyancing at a Crossroads: The Transition to E-conveyancing Applications in the US and Abroad*, 20 IND. INT'L & COMPAR. L. REV. 281, 287–298 (2010).

95. Comm. on the Improvement & Modernization of Land Recs., Real Prop. Div., *Land Information Systems for the Twenty-First Century*, 15 REAL PROP. PROB. & TR. J. 890, 892–95 (1980); Jacek Malczewski, *GIS-based Land-Use Suitability Analysis: A Critical Overview*, 62 PROGRESS IN PLAN. 3, 5–6, 9–13 (2004).

96. MARTIN P. RALPHS & PETER WYATT, *GIS IN LAND AND PROPERTY MANAGEMENT* 378 (2003).

## CONCLUSION

Innovative development accelerates, especially in technological fields. Consequently, research of the phenomenon of innovation developed in an attempt to investigate the causes and ramifications of innovation and find ways to improve it. Innovation in disparate areas often share similar characteristics. Innovation is not necessarily the result of a sudden flash, but the upshot of an extended process. In many cases, it arises from a real need for a solution, and it generally meets with apprehension towards change.

Innovation exists in law as well. The law regulates and encourages other fields of innovation, but also devises its own innovations – it creates legal concepts, legal institutions, legal procedures, and legal technologies. Legal innovation usually arises from the need to regulate innovation outside the realm of law or from technological or social progress, but sometimes legal innovation is conceived, *ex nihilo*, within the law itself, and then goes on to influence reality.

The scientific branch of innovation research has not accorded much attention to the research of legal innovation perhaps because law is not, by nature, a technological or production industry. Jurists take an interest in new ideas introduced in law, but less so in the process of legal innovation. Nevertheless, legal innovation has similar characteristics to the innovation in other fields and it is influenced by innovation in other fields. Legal innovation is not the result of a sudden flash of inspiration, but rather develops through a slow and gradual process. Its development generally reflects the mechanism that creates legal norms. The natural apprehension towards innovation exists in the field of law as well. The pace of legal innovation is accelerating, though it is not in sync with the tempo of technological innovation.

Just as a seemingly conservative field like land law offers insights into the nature and characteristics of legal innovation, there is much to learn about legal innovation from other branches of law. The comparison between legal innovation in different branches, in disparate countries and in varying periods can enhance our understanding of the innovation processes as well as the capacity to appraise or improve them. Legal innovation research may integrate into the general puzzle of innovation research. This Essay, of course, did not pretend to carry out this mission but hopefully built at least one brick in its emerging wall.