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**BEYOND THEORIES: INTELLECTUAL PROPERTY DYNAMICS IN THE  
GLOBAL KNOWLEDGE ECONOMY**

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ABSTRACT

This Article critically examines the inadequacy of theoretical postulates on intellectual property. It acknowledges that theorizing around intellectual property is an important ongoing but elusive intellectual adventure that is critical for law and policy direction on intellectual property. Perhaps, at no time is this fact more obvious than in the extant post-industrial epoch or the era of Global Knowledge Economy (“GKE”). The latter is spurred by advances in bio- and digital technologies. Both phenomena drive significant shift and transition in intellectual property jurisprudence and in the tide of innovation from physical to life sciences. They also supervise implosions in new and complex domains or sites for knowledge and information generation. As its feature, the global knowledge economic order is undergirded by an institutional and structural shift in international intellectual property lawmaking and governance, provoking a serendipitous counter-regime dynamic in diverse sites for contestations around intellectual property. The pivotal role of intellectual property in the GKE presents intellectual property as an increasingly multidisciplinary subject with complex issue linkages in virtually all fronts, including public health, human rights, biodiversity, biotechnology, biopiracy, the environment, ethics, culture, indigenous knowledge, electronic commerce, and research ethos. Overall, these and many more issue linkages to intellectual property are part of the latter’s open-ended dynamics in the GKE. They are constitutive of a myriad of factors that task and shape policy and theory on intellectual property as the knowledge economy continues to unravel.

INTRODUCTION

There are a number of traditional justifications for intellectual property rights.<sup>1</sup> Each of the justifications tends to provide support for, or to influence, the jurisprudence and general objective of intellectual property. Despite subtle or nuanced distinctions between competing justifications, some of the reasons adduced for intellectual property tend to overlap. The weight and credibility of specific arguments in support of intellectual property do not apply in equal measure to individual regimes of intellectual property. In other words, none of the traditional or even emergent rationalizations for intellectual property rights fully or satisfactorily account for all intellectual property regimes. These include conventional regimes like patent, copyright, and trademark, as well as evolving ones.<sup>2</sup>

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<sup>1</sup> See PETER DRAHOS, A PHILOSOPHY OF INTELLECTUAL PROPERTY RIGHTS (1996) [hereinafter PHILOSOPHY OF INTELLECTUAL PROPERTY]; William Fisher, *Theories of Intellectual Property*, in NEW ESSAYS IN LEGAL AND POLITICAL THEORY OF PROPERTY 168 (Stephen R. Munzer ed., 2001), available at <http://cyber.law.harvard.edu/people/tfisher/iptheory.pdf> (providing an overview of theories of intellectual property); Edwin C. Hettinger, *Justifying Intellectual Property*, in INTELLECTUAL PROPERTY: MORAL, LEGAL, AND INTERNATIONAL DILEMMAS 17 (Adam D. Moore ed., 1997); Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L.J. 287 (1988); Peter Drahos, *The Universality of Intellectual Property Rights: Origins and Development*, in INTELLECTUAL PROPERTY AND HUMAN RIGHTS (World Intellectual Property Organization (WIPO)/ Office of United Nations High Commissioner for Human Rights, ed., 1999), <http://www.wipo.int/tk/en/hr/paneldiscussion/papers/pdf/drahos.pdf> [hereinafter Drahos, *Universality of Intellectual Property*] (from the WIPO's Panel Discussion to commemorate the 50<sup>th</sup> Anniversary of the Universal Declaration of Human Rights).

<sup>2</sup> Intellectual property continues to evolve with the expansion of technologies. For example, it has been extended to relatively newer technologies such as integrated circuits and to specific biotechnology innovations such as plant breeding (plant breeders' right). Also part of intellectual property dynamics is the use of legislative intervention to safeguard traditional intellectual property from technological erosion. At the international level, intellectual property has been adjusted for the global extension of electronic commerce via the two 1996 WIPO treaties, which came into effect in 2002. WIPO Copyright Treaty, Dec. 20, 1996, S. TREATY DOC. NO. 105-17 (1997), 36 I.L.M. 65 (1997) [hereinafter WCT]; WIPO Performances and Phonograms Treaty, Dec. 20, 1996, S. TREATY DOC. NO. 105-17 (1997), 36 I.L.M. 76 (1997) [hereinafter WPPT]. At the national level in the United States, this trend is demonstrated in the 1998 Digital Millennium Copyright Act ("DMCA") and other digital rights management ("DRM") initiatives designed to ensure that digital technologies do not undermine or circumvent the rights of copyright owners. Digital Millennium Copyright Act, Pub. L. No. 105-304, 112 Stat. 2860 (1998) (codified as amended in scattered sections of 17 U.S.C.).

The inadequacy of theoretical postulations around conventional intellectual property also extends to the ongoing contestation in regards to the extension of intellectual property to newer frontiers.<sup>3</sup> The search for a unified theory of intellectual property is an ongoing, albeit elusive adventure.<sup>4</sup> The inconclusive nature of the theoretical inquiry, coupled with the ever expanding and ubiquitous character of intellectual property, contributes to the inherently controversial nature of the concept of intellectual property. Thus, intellectual property is hardly a stranger to controversy in terms of its subject matter, its objective, its role in promoting and stifling creativity and in contributing to inequity in the private and public claims to the benefits of creative enterprise, as well as in its overall theoretical and philosophical foundation.<sup>5</sup>

The poverty of theorization around intellectual property is perhaps more evident in the extant global knowledge economic (“GKE”) order than, perhaps, any time in the evolution of intellectual property jurisprudence. Briefly, GKE refers to hi-tech-driven

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<sup>3</sup> The issue of the use of intellectual property for the protection of indigenous knowledge is, perhaps, a more compelling exemplification of the theoretical conundrum that assails the concept of intellectual property. Not many issues are as contentious as the applicability of intellectual property to indigenous knowledge and its theoretical justifications. See, e.g., Michael Blakeney, *The Protection of Traditional Knowledge Under Intellectual Property Law*, 22 EUR. INTELL. PROP. REV. 251 (2000) (U.K.); Christine Haight Farley, *Protecting Folklore and Indigenous Peoples: Is Intellectual Property the Answer?*, 30 CONN. L. REV. 1 (1997); Naomi Roht-Arriaza, *Of Seeds and Shamans: The Appropriation of the Scientific and Technical Knowledge of Indigenous and Local Communities*, 17 MICH. J. INT’L L. 919 (1996). But cf. Paul J. Heald, *The Rhetoric of Biopiracy*, 11 CARDOZO J. INT’L & COMP. L. 519 (2003) (challenging the basis for the intellectual property argument for indigenous knowledge).

<sup>4</sup> See Hughes, *supra* note 1, at 288-90 (discussing application of labor and personality theories to intellectual property); Lior Zemer, *On the Value of Copyright Theory*, 1 INTELL. PROP. Q. 55, 56-57 (2006) (discussing the application of a “bundle” of theories of property to establish a theoretical framework for copyrights); see also Peter Lewin, *Creativity or Coercion: Alternative Perspectives on Rights to Intellectual Property*, 71 J. BUS. ETHICS 441, 441-42 (2007) (proposing an “efficiency approach” for understanding and evaluating intellectual property rights); Samuel E. Trosow, *The Illusive Search for Justificatory Theories: Copyright, Commodification and Capital*, 16 CAN. J.L. & JURIS. 217 (2003) (proposing a new legal framework for intellectual property based on neo-Marxian political economy).

<sup>5</sup> See ROSEMARY J. COOMBE, *THE CULTURAL LIFE OF INTELLECTUAL PROPERTIES: AUTHORSHIP, APPROPRIATION, AND THE LAW* 6-11 (1998); Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281 (1970); see also Brian Fitzgerald, *Theoretical Underpinning of Intellectual Property: “I Am a Pragmatist but Theory Is My Rhetoric”*, 16 CAN. J.L. & JURIS. 179, 189 (2003); Adam D. Moore, *Intellectual Property: Theory, Privilege, and Pragmatism*, 16 CAN. J.L. & JURIS. 191, 191-93 (2003).

transformations in the global economic structure and outlook, spurred especially by innovations in the digital, information, communication, and biotechnology arenas. As its primary objective, this Article revisits the basic theoretical discourses around intellectual property in a deliberately basic but intensely critical manner and highlights the dynamics of the intellectual property landscape in the GKE. Recognizing that theorization around intellectual property is an ongoing philosophical and jurisprudential undertaking, the Article argues that such a project ought to critically articulate and accommodate the pivotal and ubiquitous role of intellectual property in the elaboration of the important features of the knowledge economy. The concept of GKE saddles contemporary intellectual property theorists and policy makers alike with the urgent task to reflect and elaborate a new vision and new dynamics of intellectual property in our changing times. In this foundational contribution, this Article identifies gaps in the conventional theories of intellectual property, and key issues in the intellectual property dynamics implicated in the GKE, which ought to be of interest for the direction in which new theories and policy around intellectual property may proceed.

This Article is not concerned with an exhaustive exploration of the complex theoretical, philosophical, or even historical, discourses on the evolution of intellectual property.<sup>6</sup> Rather, in order to keep the present analysis on track with the Article's objective and scope, I shun the temptation to detour by deliberately isolating, on their surface, just a few mainstream theoretical planks underlying the logic and concept of intellectual property rights, exploring their limitations and challenges. Due to the overlapping nature of these theoretical or justificatory postulates, their elaboration in literature does not seem to follow a predictable pattern or coherent order of discourse.<sup>7</sup> Neither

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<sup>6</sup> See sources cited *supra* note 1, for a discussion of traditional justifications for intellectual property rights.

<sup>7</sup> For instance, explorations of the philosophy of intellectual property are limited to labor, personality, and natural rights, utilitarian, and instrumental analysis. Others explore the philosophy of intellectual property from reward and incentive, or even from a strict contractarian, perspective. A number of these perspectives overlap to a substantial degree and each analytical approach tends to reflect a writer's emphasis. See e.g., Carys J. Craig, *Locke, Labour and Limiting the Author's Right: A Warning Against a Lockean Approach to Copyright*, 28 QUEENS L.J. 1, 2-5 (2002) (arguing against a Locke labor theory of copyrights as counter to the social policy goals of intellectual property law); Fisher, *supra* note 1, at 2-8 (applying four prevalent theoretical approaches: utilitarian theory, Locke's labor theory, personhood/human expression theory, and social utility theory); Hughes, *supra* note 1, at 288-90 (discussing labor and personality theories of property); Adam D. Moore, *A Lockean Theory of Intellectual Property*, 21 HAMLINE L. REV. 65, 66 (1997) (arguing in favor

will the present exercise. In exploring the adequacy of conventional theorization around intellectual property in the GKE, this Article spotlights and interrogates natural rights, contract, reward and incentive, and social interest theories.

The Article is divided into three major parts. Part I revisits in a critical fashion select theories of intellectual property, highlighting their inadequacy in a knowledge-driven economic order. Part II explores the concept of the GKE and the pivotal role of intellectual property thereto. Part III offers reflective and concluding thoughts on the challenges of policy and theory for the intellectual property dynamics in the GKE.

#### PART I: INTELLECTUAL PROPERTY: THE LIMITS AND POVERTY OF THEORIES

##### A) NATURAL RIGHTS

One of the major, albeit contested, *raison d'être*s for intellectual property is anchored in the logic of natural rights.<sup>8</sup> Historically rooted in continental European approaches to intellectual property, the crux of natural rights thinking is that creators' or inventors' entitlement to their work is akin to an inherent natural right which the state is under an obligation to protect and enforce.<sup>9</sup> In its loose elaboration, the theory builds upon the primacy of personhood which promotes the notion of the inseparability of the creator from her creation.<sup>10</sup> It is suggestive of a fusion of the individual with her

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of a Locke labor theory of intellectual property and against social utility theory); Zemer, *supra* note 4 (applying a "bundle" of theories of property to establish a theoretical framework for copyright theory); Drahos, *Universality of Intellectual Property*, *supra* note 1, pt. 1 (discussing intellectual property rights in the context of human rights). Each of these writers has slightly different classifying frameworks for exploring the theoretical justifications of intellectual property under the specific objectives of their cited works.

<sup>8</sup> See Adam Mossoff, *Rethinking the Development of Patents: An Intellectual History, 1550-1800*, 52 HASTINGS L.J. 1255, 1257-58 (2001) (restating the weakness of the natural rights thesis in the context of intellectual property and, nonetheless, making a strong case for the intellectual influence of natural rights philosophers such as John Locke, Hugo Grotius, and Samuel Pufendorf on patent jurisprudence).

<sup>9</sup> See IKECHI MGBEOJI, GLOBAL BIOPIRACY: PATENTS, PLANTS, AND INDIGENOUS KNOWLEDGE 19 (2006).

<sup>10</sup> See Craig, *supra* note 7, at 9-10; Jeanne L. Schroeder, *Unnatural Rights: Hegel and Intellectual Property*, 60 U. MIAMI L. REV. 453, 453-54, 459 (2006) (arguing that although G.W.F. Hegel is associated with a personality theory of intellectual property, namely, the role of property in the constitution of personality, many analysts have overstretched their extrapolation of the Hegelian thought to suggest that the state has an absolute obligation to recognize intellectual property claims,

creation as an aspect of self-expression, self-realization, identity, or possessive individualism.<sup>11</sup> This thinking accounts for the primacy of authorial rights and the sanctity of moral rights in copyright jurisprudence, especially in continental Europe.<sup>12</sup> On the surface, the appeal to natural rights highlights the human rights nexus of intellectual property. However, the intellectual property and human rights intersection implicates intrinsic and paradoxical dialectics, the exploration of which is outside the scope of this Article.<sup>13</sup>

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especially moral rights. Schroeder argues that a true construction of Hegel suggests that there is no such absolute obligation on the state); *see also* PHILOSOPHY OF INTELLECTUAL PROPERTY, *supra* note 1, at 73-91 (exploring the Hegelian thought on the fusion of the creator with her work as a component of personhood); Pascal Kamina, *Author's Right as Property: Old and New Theories*, 48 J. COPYRIGHT SOC'Y U.S.A. 383, 390 (2001); Jeremy Waldron, *From Authors to Copiers: Individual Rights and Social Values in Intellectual Property*, 68 CHI.-KENT L. REV. 841, 879 (1993).

<sup>11</sup> *See* C.B. MACPHERSON, *THE POLITICAL THEORY OF POSSESSIVE INDIVIDUALISM: HOBBS TO LOCKE* (Oxford Univ. Press 1964) (1962) (discussing the author's perspective on possessive individualism); PHILOSOPHY OF INTELLECTUAL PROPERTY, *supra* note 1.

<sup>12</sup> *See* Craig, *supra* note 7, at 7, 35-36; Zemer, *supra* note 4, at 67; *see also* BENJAMIN KAPLAN, *AN UNHURRIED VIEW OF COPYRIGHT* 117 (1967) (cited by Zemer, *supra* note 4); Peter Jaszi, *On the Author Effect: Contemporary Copyright and Collective Creativity*, in *THE CONSTRUCTION OF AUTHORSHIP: TEXTUAL APPROPRIATION IN LAW AND LITERATURE* (Martha Woodmansee & Peter Jaszi eds., 1994). *See generally* PHILOSOPHY OF INTELLECTUAL PROPERTY, *supra* note 1. The primacy accorded to moral right in Europe provides support for the concept of the "romantic author" which has been a flashpoint of scholarly discourse and a counter narrative around the concept of "authorial deconstructionism." The latter is a dedicated critique of the notion of the romantic author in a way that seeks to deconstruct authorship as a sole/individual enterprise while promoting the author as a collaborator or partner in the creative enterprise and "a vessel through which many influences and experiences are poured." Lior Zemer, *THE IDEA OF AUTHORSHIP IN COPYRIGHT* 19 (2007) ("For scholars engaged in research and authorial constructionism, the author is deconstructed into a vessel through which many influences and experiences are poured.") *See generally* Oren Bracha, *The Ideology of Authorship Revisited: Authors, Markets, and Liberal Values in Early American Copyright*, 118 YALE L.J. 186, 188-92 (2008) (discussing the competing interests that shape the notion of authorship in copyright law).

<sup>13</sup> *See* Audrey R. Chapman, *The Human Rights Implications of Intellectual Property Protection*, 5 J. INT'L ECON. L. 861, 861-63 (2002) (U.K.); Laurence R. Helfer, *Human Rights and Intellectual Property: Conflict or Coexistence?*, 5 MINN. INTELL. PROP. REV. 47, 47-49 (2003); Peter K. Yu, *Reconceptualizing Intellectual Property Interests in a Human Rights Framework*, 40 U.C. DAVIS L. REV. 1039, 1041-47 (2007); *see also* Christopher R. Eppich, *Patenting Dilemma: Drugs for Profit Versus Drugs for Health*, 43 SANTA CLARA L. REV. 289, 289-91 (2002); James Thuo Gathii, *Rights, Patents, Markets and the Global AIDS Pandemic*, 14 FLA. J. INT'L L. 261 (2002).

Despite its attraction and logic, in practice the claims to intellectual property rights are hardly staked on absolute terms or in the form suggestive of the inalienability inherent in natural rights philosophy.<sup>14</sup> Indeed, contrary to sentiments in continental Europe, the American approach to intellectual property does not accord primacy to natural rights.<sup>15</sup> Even in regard to real or fixed property, “propertarian” absolutism is an anathema, more so in relation to intellectual property or right claims on rivalrous goods and products of the intellect.<sup>16</sup>

There are ample checks, at least theoretically, on intellectual property rights that reflect social policy leveraging of such rights as society negotiates and balances competing interests, including costs and benefits implicated in granting to creators exclusive and absolute rights to their works.<sup>17</sup> Conceivably more important, intellectual property rights, for the most part, are statutorily created rights rather than inherent and inalienable natural rights.<sup>18</sup> Statutes, case law, and contracts, including general common law traditions and other regulatory and quasi-regulatory regimes, control the ambit of rights over intellectual products, taking such rights well outside natural rights’ unfettered terrain.

Traditionally, special exceptions or rights are created under common law and statute reflecting the non-absolute character of rights to intellectual property. Notable in these regards are such accommodations relating to education, “fair use,” “fair dealing,”<sup>19</sup>

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<sup>14</sup> See Schroeder, *supra* note 10, at 453.

<sup>15</sup> Strictly, natural rights are not contingent upon specific law; they are inherent and “naturally” arising. However, in the United States, there is a direct and independent constitutional justification for intellectual property. Article 1 Section 8, Clause 8 of the U.S. Constitution vests Congress with the power to make laws to promote “the Progress of Science and useful Arts.” U.S. CONST. art. I, § 8, cl. 8.

<sup>16</sup> Traditionally, property rights are subject to overriding public interests which are often invoked to mediate the competing claims to private and public entitlements. See Lawrence Lessig, *The Creative Commons*, 55 FLA. L. REV. 763, 776 (2003).

<sup>17</sup> MGBEOJI, *supra* note 9, at 19-20.

<sup>18</sup> But for a number of exceptions including trade secrets and in some jurisdictions moral rights and common law trademark, virtually all other regimes of intellectual property are now statute-based. However, in all common law jurisdictions and the United States, copyright, trademark, and ancillary rights concurrently derive from both statute and common law.

<sup>19</sup> “Fair dealing” in the United Kingdom and Canada and “fair use” in the United States are similar exemptions to copyright protection, covering such uses as research/study, criticism, satire, parody, review, news reporting, etc. For contemporary perspectives on the scope and ramifications of these statutory provisions in two jurisdictions, see Melissa De Zwart, *A Historical Analysis of the Birth of Fair Dealing and Fair Use: Lessons for the Digital Age*, 1 INTELL. PROP. Q. 60, 63 (2007). Unlike the United States’ “fair use” doctrine, Australia, Canada and the United Kingdom have a “fair dealing” provision. See Giuseppina D’Agostino,

(access to information, news reporting, parody/satire, criticism, review, etc.), and other uses in relation to copyright works. Similarly, in regard to patents, discoveries, scientific theories, and mathematical methods enjoy special exception.<sup>20</sup> Also, discretion, such as compulsory licenses are used to reconcile the monopoly rights of intellectual property owners and to check the abuse of such rights.<sup>21</sup> Discretionary powers are also applied to exclude inventions from patentability, especially for reasons of national security and exigencies of war, such as is the case regarding inventions in atomic and nuclear energies and aeronautics in the United States and Canada.<sup>22</sup>

Life forms (plant and animal varieties, and the essential biological processes employed in their production),<sup>23</sup> mental arts, games,

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*Healing Fair Dealing? A Comparative Copyright Analysis of Canada's Fair Dealing to U.K. Fair Dealing and U.S. Fair Use*, 53 MCGILL L.J. 309, 312-14 (2008) (Can.).

<sup>20</sup> For instance, Section 27(8) of the Canada Patent Act provides that “[n]o patent shall be granted for any mere scientific principle and abstract theorem.” Patent Act, R.S.C., ch. P-4, § 27(8) (1985) (Can.). This is a standard provision in most patent statutes.

<sup>21</sup> See MGBEOJI, *supra* note 9, at 19.

<sup>22</sup> See *id.* at 19-20 & nn. 88-89. In the United States and Canada, patent statutes and specific legislation on atomic energy, aeronautics, and space have special provisions that subordinate innovations in those areas to national security considerations. Indeed, as sovereigns, governments have ample discretion to access or otherwise exercise special rights or privileges over patents under a number of guises. For instance, in Canada, the federal government may apply to use patented inventions; it may also use existing patents for international humanitarian purposes to address public health needs. Patent Act, R.S.C., ch. P-4, § 19 (1985) (Can.). Furthermore, the Canadian government reserves to itself the right to access information related to nuclear inventions before the invention’s patent application is evaluated by a patent examiner. . See *id.* § 22.

<sup>23</sup> Canada’s Patent Act defines “invention” in language that seems to exclude these developments. See Patent Act, R.S.C., ch. P 4, § 2 (1985) (Can.); see also *Harvard College v. Canada (Commissioner of Patents)*, [2002] 4 S.C.R. 45 (holding that higher life forms “cannot be conceptualized as mere compositions of matter in the context of the Act”). Sections 101 and 102 of the United States Patent Code, the United States’ counterpart to Canada’s Patent Act, which uses identical words to articulate the scope of patentable subject matter, are subject to the interpretational dynamics of the courts, resulting in convoluted or equivocal outcomes. See 35 U.S.C. §§ 101-102 (2006); Murray Lee Eiland, *Patenting Traditional Medicine*, 89 J. PAT. & TRADEMARK OFF. SOC’Y 45, 53-56 (2007). Article 27 of the Agreement on Trade-Related Aspects of Intellectual Property Rights also makes a similar pretension to the exclusion of categories of life forms from patents. General Agreement on Tariffs and Trade: Multilateral Trade Negotiations Final Act Embodying the Results of the Uruguay Round of Trade Negotiations, Annex 1C: Agreement on Trade-Related Aspects of Intellectual Property Rights, art. 27, Apr. 15, 1994, 33 I.L.M. 1125 [hereinafter TRIPS Agreement].

considerations regarding public morality,<sup>24</sup> and, to some extent, business methods<sup>25</sup> are equally sites for leveraging the reach or limits of patents. In addition to all the aforementioned categories of control, form prescriptions, such as in the nature of patent specifications, term limits and general limitations on patentable subject matter and patentability assist to put checks on the intellectual property system. These examples support the idea that rights to intellectual property are not absolute in the nature of natural rights thinking.

## B) CONTRACT THEORY

The second major theoretical account of intellectual property is essentially a “contractarian” or contract-based argument.<sup>26</sup> This appears more obvious in regard to patents and less so regarding copyrights. As to the latter, the contractarian thesis is self-evident in its early evolution when registration and deposit of copyrighted works was part of the consideration for their protection.<sup>27</sup> Under the contractarian narrative, the inventor notionally agrees to disclose her invention to the state, for example, by way of filing a patent specification in consideration or exchange for the exclusive right, like a monopoly, to exploit the invention for a fixed term. At the expiration of the term, the public is free to exploit the invention

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<sup>24</sup> See TRIPS Agreement, *supra* note 23. The jurisprudence around the doctrine of public morality is well developed in Europe. However, in the United States, for a season it was merely sustained by case law, under the doctrine of moral utility. But that line of reasoning did not seem to have survived close academic scrutiny. Now, it no longer enjoys respect in contemporary judicial thinking. See Margo A. Bagley, *Patent First, Ask Questions Later: Morality and Biotechnology in Patent Law*, 45 WM. & MARY L. REV. 469 (2003).

<sup>25</sup> The exemption of business methods from patents is gradually losing its respect in scholarship and judicial decisions on the subject matter. With the advent of digital technologies and the pivotal role of software in business and services delivery, judicial decisions and policy outlooks now seem to cast doubt on the integrity of the jurisprudence that exempt business methods from patentability, as evidenced by decisions from the United States Patent and Trademark Office and the expansion of patent applicability to software in countries such as Japan and Australia.

<sup>26</sup> See MGBEOJI, *supra* note 9, at 20-21; Ikechi Mgbeoji & Byron Allen, *Patent First, Litigate Later! The Scramble for Speculative and Overly Broad Genetic Patents: Implications for Access to Health Care and Biomedical Research*, 2 CAN. J. L. & TECH. 83, 83 (2003); see also Ruth L. Gana, *Has Creativity Died in the Third World? Some Implications of Internationalization of Intellectual Property*, 24 DENV. J. INT'L L. & POL'Y 109 (1995); A. Samuel Oddi, *Beyond Obviousness: Invention Protection in the Twenty-First Century*, 38 AM. U. L. REV. 1097 (1989).

<sup>27</sup> See John Feather, *Authors, Publishers and Politicians: The History of Copyright and the Book Trade*, 12 EURO. INTELL. PROP. REV. 377, 377-79 (1988) (U.K.); see also Peter K. Yu, *Of Monks, Medieval Scribes, and Middlemen*, 2006 MICH. ST. L. REV. 1, 15-18 (2006).

without the patent holder's interference. It is expected that the inventors or writers and their sponsors would recoup the cost and profit from their investment of labor, time, and ingenuity in innovation within the term of the patent or copyright.<sup>28</sup>

The aspect of recouping of cost and profit-making is an incentive to the inventor and a boost to the future of the inventive or creative enterprise. Profit as incentive constitutes a component of the contractarian narrative of intellectual property. It also underlies the instrumental imperative that is at the core of other competing and complementary theories of intellectual property, simultaneously highlighting the inchoate character of theoretical delineation within the discourse on intellectual property. Essentially, in the contractarian model, the residual claim of the state or the public to a hitherto exclusive right at the expiration of the specified term ensures that the public has access to the invention. That way, the invention remains resourceful for further innovation in order to support the growth of knowledge and, ultimately, a richer public domain. Ideally, maintaining or achieving such a robust public domain is the crux of the public-regarding purpose of intellectual property.<sup>29</sup>

The contractarian narrative is undermined by other non-contractual approaches to intellectual property, such as trade secrets<sup>30</sup> or, to a lesser extent, moral rights. Trade secrets and moral rights are not subject to term limits. Moral rights are interminable and permanently residual. Holders of trade secrets are entitled to exploit them as long as a secret remains uncompromised and economically valuable.<sup>31</sup> For the two categories, there is no contractarian form of mediation by statute to primarily secure competing interests other than those of rights holders.

As already noted, for the most part, the contract theory finds traction with the patent regime of intellectual property as circumscribed by statutory term limit. However, recent efforts at a progressive extension of intellectual property, especially patents, to arenas for which there was no initial enthusiasm, such as life forms including genes, discoveries, business methods, etc., chip away the

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<sup>28</sup> See MGBEOJI, *supra* note 9, at 20-21. It is, however, possible that the inventor or writer may never receive compensation for his or her invention; for instance, the fax machine was invented in 1842 but did not enter commercial use until the early 1980s. *Id.* at 21.

<sup>29</sup> See Lessig, *supra* note 16, at 764; see also Craig, *supra* note 7, at 5-6.

<sup>30</sup> See James Pooley, *The Ten Top Issues in Trade Secret Law*, 70 TEMP. L. REV. 1181, 1181-82 (1997); see also Nisvan Erkal, *On the Interaction Between Patent Policy and Trade Secret Policy*, 37 AUSTL. ECON. REV. 427, 427-28 (2004).

<sup>31</sup> See *Bluebonnet Petroleum, Inc. v. Kolkhorst Petroleum Co., Inc.*, 2008 WL 4527709 at \*4 (Tex. App. Oct. 9, 2008).

credibility of the contractarian doctrine. The initial exclusion of intellectual property claims from those arenas is arguably pursuant to a social contract of sorts and within the matrix of the contract theory. Public interest considerations influence the exclusion of those categories from exclusive private ownership claims under an unwritten and putative social contract. For example, complex socio-cultural, religious, and ethical perceptions of life raise multifaceted questions over biotechnology or technological innovations in the realm of life forms and their resulting privatization through intellectual property.<sup>32</sup>

A significant demonstration of the systemic undermining of the contractarian thesis is the emboldened industrial practice, with judicial and legislative connivance, in support of the phenomenon of patent ever-greening.<sup>33</sup> Ever-greening is one of the prominent weapons in the hands of industry to undermine statutorily-sanctioned or contractarian term limits and to scuttle early onset of the residual rights of the public, especially generic drug makers, to access and exploit information contained in patent specifications. Specifically, ever-greening is a deliberate creative device used by patent owners to indirectly extend the term of existing patents through the creation of artificial updates thereto. Such revisions qualify as improvements on existing knowledge. Consequently, they are subject to a fresh patent that indirectly elongates the life of an existing one.

The practice of patent term elongation is not alien to the patent tradition. From its historical evolution, a patent term was open-ended and subject to the discretion of the issuing sovereign.<sup>34</sup> Progressively, it has been tossed up and down by statute. It has been stretched from the initial statutory seven years, by some accounts, up to the current historic high of twenty years in most jurisdictions.<sup>35</sup> The same

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<sup>32</sup> See Bagley, *supra* note 24, at 495; see also Hartley Gorenstein, *The Regulation of Biotechnology in Canada: Social and Moral Issues*, 2 MED. L. INT'L 169 (1996) (U.K.). See generally Jasper A. Bovenberg, PROPERTY RIGHTS IN BLOOD, GENES & DATA: NATURALLY YOURS? 75-81 (2006).

<sup>33</sup> For a discussion of the phenomenon of patent ever-greening as practiced in the pharmaceutical industry, see Aaron S. Kesselheim, *Intellectual Property Policy in the Pharmaceutical Sciences: The Effect of Inappropriate Patents and Market Exclusivity Extensions on the Health Care System*, 9 AM. ASS'N PHARM. SCIENTISTS J. E306, E308-09 (2007), available at

<http://www.aapsj.org/view.asp?art=aapsj0903033>.

<sup>34</sup> See Mossoff, *supra* note 8, at 1264-67.

<sup>35</sup> See Lessig, *supra* note 16, at 764 (discussing expansion of copyright terms by Congress); Mossoff, *supra* note 8 (chronicling the history of patents from 1550-1800); see also ADAM B. JAFFE & JOSH LERNER, INNOVATION AND ITS DISCONTENTS 78-95 (2004) (comparing modern debates about patent terms to historical controversies on the subject).

legislative practice is even more visible, and certainly more pronounced, in regard to copyright.<sup>36</sup>

Similar to the creative trend of intellectual property term expansion is the practice of extending protection to regulatory or test data, especially in pharmaceutical, chemical and agricultural-allied industries, in regional and national jurisdictions.<sup>37</sup> Regulatory data are forms of secondary information, such as clinical trial data, regulatory approval documentation and other pre-marketing details or data generated in the process of securing regulatory approval for the commercialization of patents of innovation, especially in pharmaceutical, biotechnology, environmental, natural food and allied industries.<sup>38</sup> Emboldened by the agreement on Trade-Related Aspects of Intellectual Property Rights (“TRIPS”),<sup>39</sup> many national and regional intellectual property regimes have extended protection to regulatory data, considering such data as proprietary.<sup>40</sup>

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<sup>36</sup> See Kenneth D. Crews, *Copyright Duration and the Progressive Degeneration of a Constitutional Doctrine*, 55 SYRACUSE L. REV. 189, 205-14 (2005) (chronicling the U. S. Congress’ unmitigated addition to the upward review of the copyright term).

<sup>37</sup> See TRIPS Agreement, *supra* note 23, art. 39.3 (“Members, when requiring, as a condition of approving the marketing of pharmaceuticals or of agricultural products which utilize chemical entities, the submission of undisclosed test or other data, the origination of which involves a considerable effort, shall protect such data against disclosure, except where necessary to protect the public, or unless steps are taken to ensure that the data are protected against unfair commercial use.”); North American Free Trade Agreement, U.S.-Can.-Mex., art. 1711, Dec. 17, 1992, 32 I.L.M. 605, 675 (1993). For an interpretational perspective on Article 39.3 of the TRIPS Agreement, see Shamnad Basheer, *Protection of Regulatory Data Under Article 39.3 of TRIPS: The Indian Context*, INTELL. PROP. INST., available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=934269](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=934269); see also Council Directive 2004/27/EC, 2004 O.J. (L 136/34) (EU).

<sup>38</sup> See TRIPS Agreement, *supra* note 23, art. 39.3.

<sup>39</sup> See *id.*

<sup>40</sup> In the United States and Canada, even before the TRIPS Agreement, legislative and regulatory regimes aimed at the protection of regulatory data and indirect extensions of patent terms were in place. For example, the 1993 Notice of Compliance (“NOC”) regulation, made pursuant to the Patent Act in Canada, compensates for delayed time in the course of seeking regulatory approval by extending the patent term. The NOC also extends protection to regulatory data, including clinical trial information associated with brand name drugs, by five years beyond the life of the patent. See Trudo Lemmens & Ron A. Bouchard, *Regulation of Pharmaceuticals in Canada*, in CANADIAN HEALTH LAW POLICY 311, 348 (Jocelyn Downie, Timothy Caulfield & Colleen M. Flood, eds., 3rd ed. 2007), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=958929](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=958929). In 1984, the United States enacted the Drug Price Competition and Patent Term Restoration Act, commonly referred to as the Hatch-Waxman Act, which extends a pharmaceutical patent term by compensating for time lost to the approval process. A year before, pursuant to the 1983 Orphan Drugs Act, the United States extended the patent term for orphan drugs, drugs that target diseases statutorily classified as rare,

In the pharmaceutical industry, for example, protection of regulatory or test data continues to undermine the interest of generic drug manufactures and the general public seeking access to vital information required to exploit inventions after the expiration of their patent term. Despite arguments in support of tightening access to test data,<sup>41</sup> in the pharmaceutical context, such a practice is often targeted at generic drug makers, escalating the lack of access to essential drugs for use by needy populations across the globe.<sup>42</sup> Protection of regulatory data is an indirect safeguard for patent term expansion and market maximization.<sup>43</sup> Thus, without access to regulatory data, generic drug manufacturers' ability to encroach into the monopoly enjoyed by the holder of an expired patent on an important drug is scuttled.<sup>44</sup>

The practices of extending intellectual property to novel domains, patent ever-greening, and the protection of regulatory data cumulatively undermine a key aspect of the contractarian narrative. In particular, these trends stultify the idea of a term limit by creating interminable intellectual property terms, stifling and circumscribing the public and specific stakeholders' residual interests in vital information to which they would otherwise be entitled. At the core of the contractarian theory is the exchange of a limited monopoly right for the promise of access to vital information at the end of a specified term. The creative ease with which the practice of term elongation is entrenched underscores a deficit in the contractarian theory of intellectual property rights.

### C) REWARD AND INCENTIVE

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barring the introduction of their generic version by seven years after patent expiration. Drug Price Competition and Patent Term Restoration Act of 1984, Pub. L. No. 98-417, 98 Stat. 1585 (codified in scattered sections of 15, 21, 28, and 35 U.S.C.); Orphan Drug Act, Pub. L. No. 97-414, 96 Stat 2049 (1983) (codified in scattered sections of 15, 21, 26, 35, and 42 U.S.C.). For a summary of regulatory data protection in a number of countries, including Japan, *see* Jonathan de Ridder, *Data Exclusivity: Further Protection for Pharmaceuticals*, FINDLAW AUSTL., June, 2003, <http://www.findlaw.com.au/articles/printArticle.asp?id=9200>.

<sup>41</sup> The main argument for the protection of regulatory data is that the process of generating them is capital intensive. To allow second comers or generic drug makers to use this data without compensating their brand name counterparts amounts to free-riding and is fundamentally an unfair commercial practice.

<sup>42</sup> *See* CARLOS MARÍA CORREA, PROTECTION OF DATA SUBMITTED FOR THE REGISTRATION OF PHARMACEUTICALS: IMPLEMENTING THE STANDARDS OF THE TRIPS AGREEMENT 6 (2d prtg. 2002), *available at* <http://apps.who.int/medicinedocs/pdf/h3009ae/h3009ae.pdf>

<sup>43</sup> *Id.* at 6, 14.

<sup>44</sup> *Id.* at 6.

A third and, perhaps, the most prominent conventional theoretical postulate for intellectual property is premised on reward and incentive.<sup>45</sup> Due to its prominence, it warrants a little detailed interrogation. We have broached the relationship between this theoretical construct with the contractarian model as an aspect of instrumentalism implicated within the breadth of intellectual property theorization. At the core of this omnibus theory of intellectual property is the belief that reward for creativity is imperative for fostering more creativity and for ensuring a robust public domain or common pool of valuable information and knowledge. When a proper balance is struck between rewarding creators and fostering a rich public domain, the reward and incentive narrative rightly takes on a central role in the public-regarding aspect of intellectual property justification.

Promoting intellectual property as a catalyst for inventiveness and creativity bears the status of conventional wisdom.<sup>46</sup> According to this logic, invention and creativity are fostered by the provision of various forms of reward as incentive to the original creators. Historically, outside the intellectual property matrix, alternative forms of reward or incentive for creativity are applied to support innovation and creativity. Indeed, the reward/incentive theory is virtually universal across civilizations.<sup>47</sup>

Forms of reward in intellectual property jurisprudence are constituted in diverse representations, such as patent/copyright royalties, licensing fees and variegated rents, and associated contractual rights. As the most prominent of its theoretical justifications, the applicability of that narrative to all regimes of

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<sup>45</sup> See EDITH PENROSE, *THE ECONOMICS OF THE INTERNATIONAL PATENT SYSTEM* (1951). See generally, Oddi, *supra* note 26 (evaluating the incentives offered by the modern U.S. patent system). Reward can serve as an incentive, whereas an incentive can be delivered as a form of reward. For the purpose of this paper, the two concepts are taken as symbiotic in a deliberately conflated manner. It is, however, recognized that the two terms do not necessarily share symbiotic objectives.

<sup>46</sup> The reward and incentive argument is at the core of the law and economics approach to the intellectual property system. See generally WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* (2003) (restating core economic bases for intellectual property in a very balanced and objective analysis).

<sup>47</sup> Awards, prizes, and honors, such as the prestigious Nobel laurel and other distinguished private, professional and public endowments, are acknowledged reward and incentive schemes that do not have the inherent limitations of the intellectual property system. These options were regular alternatives canvassed by the opponents of the patent system through its historically checkered evolution. See Kesselheim, *supra* note 33, at E306–07; see also Mossoff, *supra* note 8.

intellectual property is unassailable.<sup>48</sup> Yet, it is perhaps, equally, the most problematic theory, not in terms of its logic, but in terms of its underlying presumptions and emphasis on profitability or the profit motive as the driver of creativity and innovation.

The logic of the incentive/reward theory does not support the thesis that without incentives, the wheels of creativity will falter or, in a worst case scenario, grind to a halt.<sup>49</sup> The link between intellectual property and creativity remains anecdotal, speculative, presumptuous, and in need of further interrogation.<sup>50</sup> In regard to patents, an evaluation of studies that have examined the link between patents and inventiveness, concludes as follows:

[I]n spite of generalized, polemical assertions of a causal link between patent regimes and inventiveness, the ‘most well reasoned studies of patent systems’ have failed to establish it. Indeed, economists are almost unanimous in their belief that there is no conclusive evidence to show that patent systems have any causal relationship with inventiveness. Surveys of business leaders (with the notable exception of pharmaceutical companies) typically place a low ranking on patents as a stimulant for research and development.<sup>51</sup>

It is certainly instructive that except in a few isolated cases,<sup>52</sup> the patent system and its proponents refrain from taking credit for the

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<sup>48</sup> *But see* Ikechi Mgbеoji, Patents and Plants: Rethinking the Role of International Law in Relation to the Appropriation of Traditional Knowledge of the Uses of Plants (2002) (unpublished J.S.D. dissertation, Dalhousie University) (on file with Wake Forest Intellectual Property Law Journal) (arguing that “the reward theory does not explain or justify the phenomenon of inventiveness” in patent jurisprudence).

<sup>49</sup> *See* Penrose, *supra* note 45, at 32; *see also* A. Samuel Oddi, *The International Patent System and Third World Development: Reality or Myth?*, 1987 DUKE L.J. 831 (arguing that the idea that intellectual property rights will encourage inventiveness in the Third World is a self-serving campaign by industrial countries in order to retain their industrial and technological hegemony, and that strict enforcement of intellectual property rights discourages technological take-off in developing countries). *But cf.* William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325 (1989).

<sup>50</sup> MGBEOJI, *supra* note 9, at 21.

<sup>51</sup> *Id.* at 21; *see also* WILLIAM HYDE PRICE, *THE ENGLISH PATENTS OF MONOPOLY: I HARVARD ECONOMIC STUDIES*, 62 (Harvard Univ. Press 1913) (1906).

<sup>52</sup> *See, e.g.*, MGBEOJI, *supra* note 9, at 21 (ascribing the credit for “inventing” the patent system to England and linking that feat to that country’s industrial leadership position for over 200 years).

industrial revolution.<sup>53</sup> Notable civilizations, including Imperial China,<sup>54</sup> the Arab world, and undocumented pre-historic indigenous and local communities across the globe sustained their distinguished technological and scientific feats without a conventional intellectual-property system.<sup>55</sup> Also, the customary legal regimes that promote creativity in indigenous and local communities are far from being regimes of exclusion like the conventional or western forms of intellectual property.<sup>56</sup> The jury is still out in regards to the credibility of the underlying assumptions, despite their compelling logic,

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<sup>53</sup> See T.S. ASHTON, *THE INDUSTRIAL REVOLUTION, 1760-1830* (Oxford Univ. Press 1964) (1948); PHYLLIS DEANE, *THE FIRST INDUSTRIAL REVOLUTION* (1965); PETER MATHIAS, *THE FIRST INDUSTRIAL NATION: AN ECONOMIC HISTORY OF GREAT BRITAIN* (3d ed., Routledge 2001) (1969) (arguing in opposition of the idea of a causal relationship between the patent system and the industrial revolution); Price, *supra* note 51; see also MOUREEN COUTLER, *PROPERTY IN IDEAS: THE PATENT QUESTION IN MID-VICTORIAN BRITAIN* (1991) (arguing that the effect of the patent system on the industrial revolution remains inconclusive).

<sup>54</sup> See WILLIAM P. ALFORD, *TO STEAL A BOOK IS AN ELEGANT OFFENCE: INTELLECTUAL PROPERTY LAW IN CHINESE CIVILIZATION* 9-29 (1995); Brigitte Binkert, *Why the Current Global Intellectual Property Framework Under TRIPS Is Not Working*, 10 *INTELL. PROP. L. BULL.* 143, 147 (2006) (noting that communist ideology influenced the Chinese approach to intellectual property, which protects individual's claim to intellectual property, but "inventions by State employees relating to national security or scientific advances that benefitted a larger part of society were state property."); see also William P. Alford, *Don't Stop Thinking About...Yesterday: Why There Was No Indigenous Counterpart to Intellectual Property Law in Imperial China*, 7 *J. CHINESE L.* 3 (1993); Richard Baum, *Science and Culture in Contemporary China: The Roots of Retarded Modernization*, 22 *ASIAN SURV.* 1166 (1982); Jianyang Yu, *Protection of Intellectual Property in the P.R.C.: Progress, Problems, and Proposals*, 13 *UCLA PAC. BASIN L.J.* 140 (1994).

<sup>55</sup> See JOSEPH NEEDHAM, *THE GRAND TITRATION: SCIENCE AND SOCIETY IN EAST AND WEST* (Routledge 2005) (1969); JOSEPH NEEDHAM, *SCIENCE AND CIVILISATION IN CHINA* (1954); MGBEOJI, *supra* note 9, at 23 (doubting any universal basis for linking intellectual property, science and economic development) (quoting *PHILOSOPHY OF INTELLECTUAL PROPERTY*, *supra* note 1, at 15).

<sup>56</sup> The community, more than the individual, is the key unit and model of creativity in many indigenous and non-Western societies. Consequently, there is a structured but limited model of exclusion of community members from the products of innovation. For example, in many African communities, different communal units such as family, age-grade, royal stool, kinship membership, etc., are custodians of traditional medicinal knowledge and innovation, which are often held in trust for the larger community. For intellectual property in non-Western societies, see WORLD INTELLECTUAL PROP. ORG., *INTELLECTUAL PROPERTY NEEDS AND EXPECTATION OF TRADITIONAL KNOWLEDGE HOLDERS: WIPO REPORT ON FACT-FINDING MISSIONS ON INTELLECTUAL PROPERTY AND TRADITIONAL KNOWLEDGE 1998-99* (2001), available at <http://www.wipo.int/export/sites/www/tk/en/tk/ffm/report/final/pdf/part1.pdf>.

concerning the reward and incentive narrative of the intellectual-property system.<sup>57</sup>

Rather than invention or creativity, the commercialization of innovation drives intellectual property.<sup>58</sup> For instance, patent provides investors and inventors much needed comfort to invest risk capital or to expend effort in the pursuit of innovation.<sup>59</sup> Similarly, a publisher's expectation of profit from a publishing enterprise is a factor of the monopoly granted by copyright. Publishing has little to do with the future creativity or economic prosperity of an individual author.<sup>60</sup> The prospect of commercial success prods publishers to sign celebrity writers. The pop-culture appeal and politically explosive or socially seductive nature of the subjects that constitute the stuff of celebrity writers trump any consideration regarding their creativity and ingenuity. It is attractive for truly creative writers to "lend" their writing skills and talents to prominent figures or celebrities who are better placed to broker juicy and commercially viable publishing contracts.<sup>61</sup>

The same is true regarding publishers' inclination to publish viable and popular subjects on the basis of their commercial appeal. It is hardly surprising that works that make the most meaningful contributions to research, innovation and knowledge are mostly published under various forms of public subsidy, as they are hardly commercially viable.<sup>62</sup> Indeed, most of such works do not get published. The incentive and reward argument may well be associated

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<sup>57</sup> See Susan Scafidi, *Digital Property/Analog History*, 38 LOY. L.A. L. REV. 245, 246 (2004) (arguing that "intellectual property jurisprudence operates via largely unquestioned assumptions regarding factual truth and objectivity.").

<sup>58</sup> MGBEOJI, *supra* note 9, at 23-25.

<sup>59</sup> *Id.* at 25.

<sup>60</sup> Chroniclers of the evolution of the copyright system agree that the system primarily exists to feather the nests of printers, publishers, stationers, and different categories of middlemen more than writers or members of the "scribal industry." See Yu, *supra* note 27, at 15-18.

<sup>61</sup> It is customary for celebrities, political figures, and their spouses to sign lucrative publishing contracts to write their memoirs during their days in the political, social, or professional limelight.

<sup>62</sup> For instance, many authoritative university publishers operate on one form of subsidy or another. Academic writings that make significant contributions to knowledge and innovation hardly earn any viable royalties. Most researchers and professors steeped in writing academic books are not lured by the promise of royalty and prospects of writing best sellers. Recently, a former United States First Lady (2001-2009), Laura Bush, was reported to have signed a multi-million-dollar book deal for her White House memoirs. Jeffrey A. Trachtenberg, *First Lady, Scribner Reach Deal on Memoir*, WALL. ST. J., Jan. 6, 2009, at B5. Mrs. Bush is not known to be a creative writer of note. The lucrative nature of the contract has nothing to do with her writing skills but, certainly, has everything to do with the subject of her "White House experience."

with the profitability of inventions and creative works. But it needs to be distinguished from, and not conflated with, the promotion of inventiveness and creativity. Intellectual property creates a monopoly in a manner that potentially stifles competition. That way, it provides the desired guarantee for the profitability of only such innovations and creative endeavors that are commercially viable. This outcome is not the same thing as the promotion of creativity or innovation. At best, it ensures that creativity pursues or is driven by commercial success and profit.

When creativity is dictated by, or exclusively fused with the pursuit of commercial success and the profit motive, innovation in the nobler public interest areas that have little or no direct commercial overflows is fundamentally jeopardized. The public domain is short-changed. The logic of the reward theory shifts creative and inventive efforts outside the priorities of the larger society and far from the pursuit of what is good for the greater majority. Such logic yields an innovation and creative agenda that targets the needs of those who can afford them in accordance with market/economic considerations. In this dynamic, basic or platform research with no immediate, visible, direct or short term commercial application are fundamentally undermined. In order for any such research to become profitable, it must be moved away from the framework of the institutional public trust into the realm of exclusive private entrepreneurships.<sup>63</sup> The results of such research are leveraged by artificial scarcity. They are delayed, fenced off from the public, and warehoused under elongated intellectual property terms for ultimate commercial exploitation. It does not matter that this approach freezes the evolution of innovation and stifles creativity in cutting edge areas such as genetics, genomics and proteomics.<sup>64</sup> These issues are further explored in Part II.

Intellectual property's focus on reward and incentive creates and foists a secretive and exclusive research and development culture which is alien to the communal and free-exchange ethos of scientific activities. Such research environments are highly lawyered domains subjected to intellectual property surveillance for enhancing the hoarding of information, even information on basic research, because of their commercial potential. Law and science now forge an alliance of convenience in the bid by intellectual property or profitability to dictate the course of research and development. Intellectual property

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<sup>63</sup> See Jocelyn Downie, *The Power of Money: Commercialization of Research Conducted in Public Institutions*, 11 U. OTAGO L. REV. 305 (2006) (N.Z.). See generally Jocelyn Downie & Matthew Herder, *Reflections on the Commercialization of Research Conducted in Public Institutions in Canada*, 1 MCGILL HEALTH L. PUBLICATION 23 (2007) (Can.).

<sup>64</sup> See Mgebeji & Allen, *supra* note 26; see also Bagley, *supra* note 24.

drives innovation in a direction that caters to the dictates and fancies of the affluent, engendering what analysts have tagged an epidemic of “affluenza.”<sup>65</sup> This scenario displaces the role of necessity and other non-profit contingencies not accounted for by the reward and incentive theory but which condition innovation in the public interest.

The consequences of the reward and incentive-driven intellectual property order are evident in the pharmaceutical arena, a key site for research and development. Analysts agree on a palpable disconnect between the current pharmaceutical research agenda and the global health crises.<sup>66</sup> This is obvious in the vacuum of audacity or lack of creative initiative in pharmaceutical research regarding orphan drugs and with respect to diseases endemic to the poor in the developed countries and in regions of poverty often depicted as the third world.<sup>67</sup> This glaring lapse demonstrates the failure of the reward and incentive doctrine of intellectual property as an integral component of the market economic model. Increasingly, the independent private charitable sector,<sup>68</sup> the United Nations and the World Health Organization<sup>69</sup> are playing interventionist roles in

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<sup>65</sup> See JOHN KENNETH GALBRAITH, *THE AFFLUENT SOCIETY* (4th ed. 1984). See generally OLIVER JAMES, *THE SELFISH CAPITALIST AND THE ORIGIN OF AFFLUENZA* (2008) (elaborating on the culture of consumerism and society’s addiction to the acquisition of wealth and comfort and the unmitigated and reckless ambition to satisfy every desire in ways that escalate levels of inequality in society).

<sup>66</sup> See Anup Shah, *Pharmaceutical Corporations and Medical Research* (Jan. 25, 2007), <http://www.globalissues.org/article/52/pharmaceutical-corporations-and-medical-research>; see also *An Interview with Pat Mooney*, *MULTINATIONAL MONITOR*, January/February 2000, at 33; Chakravarthi Raghavan, *Bio-tech Patents Increase Costs for Dubious Drugs*, July 3, 2007, <http://www.sunsonline.org/trade/areas/intellect/07030197.htm>.

<sup>67</sup> See Shah, *supra* note 66.

<sup>68</sup> Notably, the Bill and Melinda Gates Foundation, the William J. Clinton Foundation, the Global Network for Neglected Tropical Disease Control, and Universities Allied for Essential Medicines. These organizations and several others are committed to promoting, advocating, funding or sourcing for funding in support of diverse initiatives to address the high cost of drugs and essential vaccines and the paucity of medical research and medical services in remote third world communities ravaged by infant and maternal mortality and various other diseases, including but not limited to HIV/AIDS, malaria, tuberculosis and schistosomiasis. For an in-depth exploration of this trend, see generally Taiwo Oriola, *Strong Medicine: Patents, Market, and Policy Challenges for Managing Neglected Diseases and Affordable Prescription Drug*, 7 *CAN. J.L. & TECH.* 57 (2009).

<sup>69</sup> The World Health Organization (“WHO”) initiatives for calling attention to and tackling the challenges posed by neglected diseases dates back to the 1970s. Today, there is a World Health Organization for Research and Training in Tropical Diseases which works in concert with the World Bank and the United Nations Development Program “to establish modalities for affordable and improved treatments for tropical and neglected diseases.” Oriola, *supra* note 68, at 104. Recently, the WHO has focused on the intersection of intellectual property and the subject of global health

support of alternative creative mechanisms to encourage research and development of drugs and other medical interventions that target “unviable markets” and underprivileged populations. This phenomenon clearly demonstrates the limits of the intellectual property systems and the free market model.<sup>70</sup>

In the absence of these public spirited and non-profit interventions, intellectual property’s emphasis on profit and reward has yielded a pharmaceutical research agenda that aims at a “cosmetic society,” a healthcare research priority and a healthcare system that

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and access to essential medicines, as evident in the activities and mandates of the WHO Commission on Intellectual Property, Innovation and Public Health and that of the more recently established Intergovernmental Committee Working Group on Public Health, Innovation and Intellectual Property. For further insights, see *id.* See also WHO, *Draft Global Strategy and Plan of Action on Public Health, Innovation and Intellectual Property*, WHO Doc. A/PHI/IGWG/2/2 (July 31, 2007); Susan K. Sell, *The Quest for Global Governance in Intellectual Property and Public Health: Structural, Discursive, and Institutional Dimensions*, 77 TEMP. L. REV. 363, 393-94 (2004).

<sup>70</sup> In 2003 the World Trade Organization (“WTO”), through its General Council adopted without any dissention the 2003 WTO Decision on the Implementation of Doha Declaration (Paragraph 6) on TRIPS Agreement and Public Health. The decision allowed for compulsory licensing to pave the way for the manufacture of generic versions of patented medicines for exclusive export to countries lacking pharmaceutical manufacturing capacity. See Implementation of Paragraph 6 of the Doha Declaration on the TRIPS Agreement and Public Health (Aug. 30, 2003), Doc. WT/L/540 (Sept. 1, 2003). After a protracted five years of bureaucratic delay and red tape, in 2008, Canada was on record as the first country to fully implement the Declaration when it shipped the first consignment of generic AIDS drugs to Rwanda following a pact with that African country. Matthew Rimmer, *Race Against Time: The Export of Essential Medicines to Rwanda*, 1 PUB. HEALTH ETHICS 89, 94 (2008) (U.K.); *First Generic AIDS Drugs Finally Headed from Canada to Africa*, NAT’L UNION PUB. & GEN. EMP. NEWS, May 8, 2009, [http://www.nupge.ca/news\\_2008/n09my08a.htm](http://www.nupge.ca/news_2008/n09my08a.htm). As part of its implementing legislation, in 2004 Canada amended its Patent Act by introducing twenty new paragraphs to section 21 of the Patent Act (para. 21.01-21.2) under the title of Use of Patents for International Humanitarian Purposes to Address Public Health Problems. Use of Patents for International Humanitarian Purposes to Address Public Health Problems, R.S.C., ch. P 4 § 21.01-.2 (2004) (Can.). According to the Act, the purpose of the amendments “is to give effect to Canada’s and Jean Chrétien’s pledge to Africa by facilitating access to pharmaceutical products to address public health problems afflicting many developing and least-developed countries, especially those resulting from HIV/AIDS, tuberculosis, malaria and other epidemics.” *Id.* § 21.01. This amendment was pursuant to precursor legislation amending the Patent and Food and Drugs Act (Jean Chretien Pledge to Africa Act). Richard Elliott, *Delivering on the Pledge: Global Access to Medicines, WTO Rules, and Reforming Canada’s Law on Compulsory Licensing for Export*, 3 MCGILL INT’L J. SUSTAINABLE DEV. L. & POL’Y. 23, 41-42 (2007) (Can.). For Canada’s initiative, see *id.* at 40-56. See generally Frederick M. Abbott, *The WTO Medicines Decision: World Pharmaceutical Trade and the Protection of Public Health*, 99 AM. J. INT’L L. 317 (2005).

ignore the sick and needy but cater to the wealthy and healthy who can afford to keep investments in cosmetic drugs and procedures viable.<sup>71</sup> Recent pharmaceutical and “cosmeceutical” research and development in libido-enhancing drugs and anti-ageing products and procedures have been less problematic from the business perspective,<sup>72</sup> in comparison to the controversy surrounding funding and access in regard to dedicated research and benefits regarding autism, Downs syndrome, malaria, typhoid, meningitis, yellow fever, river blindness, chistosomiasis, HIV/AIDS, and other major health care challenges of our time.<sup>73</sup>

Similar outcomes trail innovation in the agricultural arena. For example, despite major inroads in agricultural biotechnology in the past three decades, agricultural biodiversity remains a challenge.<sup>74</sup> We have as yet to diversify our food resources from a few core agricultural crops.<sup>75</sup> This is simply because following the methodical, but gradual, extension of the patentable subject matter to include plant and plant varieties and genetic materials in general, commercial viability (a.k.a. reward/incentive), and market forces are the factors that determine what agricultural crops should be supported by research and what others are not worthy of research and development effort.<sup>76</sup>

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<sup>71</sup> Miriam Karmel, *Drugs for All Reasons: The Pharmaceutical Industry Now Targets Healthy People as Prime Targets*, UTNE READER, July/Aug. 2003, <http://www.utne.com/2003-07-01/DrugforAllReasons.aspx>.

<sup>72</sup> According to a partisan market report, three major industry players – L’Oreal SA, Avon Products Inc., and Estée Lauder Companies Inc. – control annual sales of over thirty billion dollars in the anti-ageing product range. This excludes the figures for other rivals such as Revlon, Proctor & Gamble and Unilever (the latter is a consumer product giant with a significant stake in anti-ageing cosmetic products and toiletry brands). It also excludes the figures for small and medium level independent or subsidiary laboratories in the medical and pharmaceutical research complex. The figures could also be more astounding if it were to include those for the hair replacement segment of the anti-ageing business and product lines now dominated by the duo of Pfizer and Merck & Co. Inc. See generally *Cosmeceuticals Market Research*, [http://www.researchwikis.com/Cosmeceuticals\\_Market\\_Research](http://www.researchwikis.com/Cosmeceuticals_Market_Research).

<sup>73</sup> See Shah, *supra* note 66.

<sup>74</sup> See Chidi Oguamanam, *Agro-Biodiversity and Food Security: Biotechnology and Traditional Agricultural Practices at the Periphery of International Intellectual Property Regime Complex*, 2007 MICH. ST. L. REV. 215, 224 (2007).

<sup>75</sup> *Id.* See also VANDANA SHIVA, *MONOCULTURES OF THE MIND: PERSPECTIVES ON BIODIVERSITY AND BIOTECHNOLOGY* 114 (1993); SHELDON KRIMSKY & ROGER P. WRUBEL, *AGRICULTURAL BIOTECHNOLOGY AND THE ENVIRONMENT: SCIENCE, POLICY AND SOCIAL ISSUES* 239-40 (1996).

<sup>76</sup> See Chidi Oguamanam, *Genetic Use Restriction (or Terminator) Technologies (GURTs) in Agricultural Biotechnology: The Limits of Technological Alternatives to Intellectual Property*, 4 CANADIAN J. OF L. & TECH. 59 (2005); see also PAT MOONEY & CARY FOWLER, *SHATTERING: FOOD, POLITICS AND THE LOSS OF GENETIC DIVERSITY* (1990). See generally PAT MOONEY, *THE SEEDS OF THE EARTH: A PRIVATE OR PUBLIC RESOURCE?* (1979).

The extension of intellectual property to the agro-biotechnology sector and to plant genetic materials or gene sequences, in particular, help focus agricultural research and development on a few major food crops such as wheat, corn, rice, canola, beans, peas, etc.<sup>77</sup> This is simply because the commercial viability of those crops is guaranteed by intellectual property. Interestingly, the spotlight on mono crops or cultivated crops undermines the need to focus agricultural research on harvested landraces and even on unexplored or wild species.<sup>78</sup> Those categories are known to have comparative advantages due to their resilience against disease and other ecological challenges.<sup>79</sup> This focus, even though less profitable and commercially unattractive, at least on the surface, provides better guarantees for food security and the sustainability of agricultural biodiversity.<sup>80</sup>

By far, agricultural biodiversity is a more compelling public necessity in regard to global food security and agricultural sustainability than the present concentration of research and innovation on mono crops.<sup>81</sup> Ironically, genetic revolutions have been going on in traditional farmers' fields in indigenous and local communities from time immemorial.<sup>82</sup> Such revolutions are not supported by intellectual property; rather, they are necessary for the survival of these communities for which ecological harmony is first nature.<sup>83</sup> Nonetheless, such genetic transformations have proven

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<sup>77</sup> See Oguamanam, *supra* note 74, at 224; see also MGBEOJI, *supra* note 9, at 51 (“[F]our crops—namely, wheat, rice, maize and barley—make up 90% of the world’s annual production of grain . . . the United Nations estimates that only twenty species supply 90% of the world’s food and just three—wheat, maize and rice—provide more than half.”).

<sup>78</sup> MGBEOJI, *supra* note 9, at 50-86 (discussing “Implications of Biopiracy for Biological and Cultural Diversity”).

<sup>79</sup> *Id.*

<sup>80</sup> See Chidi Oguamanam, *Intellectual Property Rights in Plant Genetic Resources: Farmers’ Rights and Food Security of Indigenous and Local Communities*, 11 DRAKE J. AGRIC. L. 273, 297-306 (2006) [hereinafter Oguamanam, *IP Rights*]. see also Oguamanam, *supra* note 74, at 223-30, 234-40, 243-55.

<sup>81</sup> See SHIVA, *supra* note 75, at 5-8; see also Oguamanam, *IP Rights*, *supra* note 80, at 297-306.

<sup>82</sup> See Oguamanam, *IP Rights*, *supra* note 80, at 276-79.

<sup>83</sup> See CHIDI OGUAMANAM, INTERNATIONAL LAW AND INDIGENOUS KNOWLEDGE: INTELLECTUAL PROPERTY, PLANT BIODIVERSITY, AND TRADITIONAL MEDICINE 6-12 (2006) [hereinafter INTERNATIONAL LAW AND INDIGENOUS KNOWLEDGE]; Surendra J. Patel, *Can the Intellectual Property Rights System Serve the Interests of Indigenous Knowledge?*, in VALUING LOCAL KNOWLEDGE: INDIGENOUS PEOPLES AND INTELLECTUAL PROPERTY RIGHTS 305-08 (Stephen Brush & Doreen Stabinski eds., 1996); Oguamanam, *IP Rights*, *supra* note 80, at 297-306; see also James D. Nations, *Deep Ecology Meets the Developing World*, in BIODIVERSITY 79, 79-82 (1988).

critical for the sustainability of crop and animal diversity and are therefore crucial for global food security.<sup>84</sup>

Contrary to what their proponents in the intellectual property debate would have us believe, reward and incentive do not exclusively explain the continuing flow of innovation and creativity.<sup>85</sup> Indeed, a more objective position is that the promise of reward and other forms of incentive as guaranteed by intellectual property are competing factors, among several others, in the promotion of innovation. Also, the impact of reward and incentive are uneven in different sites of creativity and innovation. Unlike the case with pharmaceutical innovation,<sup>86</sup> the profitability of genetic transformations happening in traditional farmers' fields and other ground-breaking inventions are hardly self-evident and are scarcely driven by the promise of reward.

Necessity, and not profit, is the mother of invention, as much as invention is the mother of necessity. Serendipity, academic respect, value-realization, social esteem, peer prestige and other nobler ideals are midwives of invention and innovation. In fact, a jurist once argued that some creative geniuses will not forbear from inventive activity even when they are confronted with the threat of a jail term as a disincentive to invent.<sup>87</sup> Many such inventors are propelled by other considerations not rationalized by reward, profit or other unseen benefits of intellectual property. In terms of priority, it would seem that these other variegated considerations would claim to be the drivers of innovation and creativity over anecdotal values of reward and incentive engendered by the intellectual property logic.

Creativity and innovation in indigenous and local communities are part of the dynamic nature of their cultural processes. Creativity and innovation arise in response to the ecological challenges these communities face, and constitute part of the imperative for the survival and sustainability of their cultures and civilizations.<sup>88</sup> The extent of intellectual property's potential to foster indigenous and local community innovation is debatable. But this is not the same as recognizing that intellectual property has the potential to propel indigenous and local community innovation to commercial

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<sup>84</sup> See Oguamanam, *IP Rights*, *supra* note 80, at 297-306; *see also* Oguamanam, *supra* note 74, at 223-30, 234-40, 243-55.

<sup>85</sup> Raghaven, *supra* note 66 (arguing that “[t]he real innovators in modern medicine are traditional medical practitioners and more than half of the world's major drugs are based upon indigenous knowledge. . . . Patents are rewarding Biopiracy—not medical innovators”).

<sup>86</sup> See MGBEOJI, *supra* note 9, at 21.

<sup>87</sup> *See id.* at 23.

<sup>88</sup> *See Patel, supra* note 83; Nations, *supra* note 83, at 79-80.

profitability.<sup>89</sup> The problem, however, is that innovation in these communities is not necessarily premised on the capitalist considerations of the market economy. For example, the commitment of members of indigenous and local communities to sustain the diversities of animal and plant or crop genetic resources in their communities through various agricultural and ecologically wholesome practices is an imperative, not only for commercial considerations, but first and foremost, for their survival and lived reality.<sup>90</sup>

The importance of ecological and genetic diversity to a cohesive global, environmental order is one in which all humanity has a common stake.<sup>91</sup> Intellectual property's fusion with market economic considerations does not necessarily reckon with the public stake in biological and cultural diversity and environmental sustainability.<sup>92</sup> It is hardly surprising that indigenous and local communities maintain a dialectical relationship with the conventional intellectual property system.<sup>93</sup> In one breadth, intellectual property seems to be antithetical to indigenous and local communities' worldviews and cultural orientation. In another, those communities

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<sup>89</sup> Today, even though creativity in many indigenous communities is under threat because of diverse factors that account for the fragmentation of those societies, intellectual property helps in making viable the profitability of creative and innovative ventures in indigenous communities. Today, Native American arts and Aboriginal crafts and other "exotic" creative endeavors in remote indigenous heartlands in Australasia, Africa, South America and Europe remain income-earning tourist treasures and subjects of intellectual property protection in many of those jurisdictions. See INTERNATIONAL LAW AND INDIGENOUS KNOWLEDGE, *supra* note 83, at 185.

<sup>90</sup> See Patel, *supra* note 83, at 79-80; Oguamanam, *supra* note 74, at 220; Oguamanam, *IP Rights*, *supra* note 80, at 274; see also MARIE BATTISTE & JAMES Y. HENDERSON, PROTECTING INDIGENOUS KNOWLEDGE AND HERITAGE: A GLOBAL CHALLENGE (2000).

<sup>91</sup> See the preambles to international environmental instruments, notably, the Convention on Biological Diversity and other instruments emanating from the 1992 Rio Summit on the Environment. *E.g.* Convention on Biological Diversity, pmbl., June 5, 1992, 1760 U.N.T.S. 142 (1993); see also Rio Declaration On Environment and Development, Braz., pmbl., June 13, 1992, U.N. Doc. A/CONF.151/26/vol. I, 31 I.L.M. 874 (Aug. 12, 1992).

<sup>92</sup> See George Martin & Saskia Vermeylin, *Intellectual Property, Indigenous Knowledge, and Biodiversity*, 16 CAPITALISM, NATURE, SOCIALISM 27, 37-38 (2005).

<sup>93</sup> Chidi Oguamanam, *Patents and Traditional Medicine: Digital Capture, Creative Legal Interventions and the Dialectics of Knowledge Transformation*, 15 IND. J. GLOBAL LEGAL STUD. 489, 490 (2008) (arguing that despite their reluctance to embrace intellectual property, the subject now poses a dilemma for many indigenous and local communities in regard to intellectual property's potential both to undermine this epistemic ideology as well as its attractiveness as an instrument for their empowerment by providing reward for their knowledge).

understand the need to take intellectual property seriously<sup>94</sup> in order to meaningfully participate as empowered stakeholders in the GKE – a concept we shall return to shortly.

#### D) SOCIAL PLANNING

In addition to the preceding theories of intellectual property, there is a fourth theory that has been espoused by an array of voices under different but related conceptual alignments. An elaborate interrogation of this fourth putative theory of intellectual property is outside the scope of this project. For convenience, this author adopts Harvard Law Professor William W. Fisher III's characterization of this model as the "social planning theory" of intellectual property.<sup>95</sup> Perhaps to underscore the novelty or evolutionary nature of this discourse, Fisher doubts whether it is appropriate to classify it as a theory.<sup>96</sup> Still lacking a settled nomenclature, just as it lacks a distinctive theoretical status, the distinguishing feature of this school of thought is its focus on the search for a desired objective of intellectual property rights in *ought* terms. It alludes, in a reflective manner, to aspects of the fundamental objective of the intellectual property enterprise.

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<sup>94</sup> *Id.* at 491.

<sup>95</sup> Fisher, *supra* note 1, at 8. Among the contemporary areas of interest for social planning advocates are the questions of intellectual property, copyright, the internet, and the "rights of publicity/personality" for celebrities. Also featured are the constitutional questions over how intellectual property rights, especially copyrights, shrink the sphere of freedom of speech and expression. Regarding arguments for social planning or public interest imperatives for intellectual property rights, see JULIE E. COHEN ET AL., COPYRIGHT IN A GLOBAL INFORMATION ECONOMY 3-60 (2002). See also James Boyle, *A Politics of Intellectual Property Rights: Environmentalism for the Net?*, 47 DUKE L. J. 87 (1997) (rejecting the over-protective tendency of intellectual property rights to support proprietary stakeholders at the expense of the broader public domain, while making a case for a "politics of intellectual property." The purpose of this 'politics' is to re-invent the public domain to include broader coalition of interests, analogous to the environmental movement, capable of defending a shrinking public domain). See generally JAMES BOYLE, SHAMANS, SOFTWARE, AND SPLEENS: LAW AND THE CONSTRUCTION OF INFORMATION SOCIETY (1996); Ralph S. Brown, Jr., *Advertising and Public Interest: Legal Protection of Trade Symbols*, 57 YALE L.J. 1165 (1948), reprinted in 108 YALE L.J. 1619 (1999); Wendy J. Gordon, *Introduction*, 108 YALE L.J. 1611 (1999); Wendy J. Gordon & Sam Postbrief, *On Commodifying Intangibles*, 10 YALE J. L. & HUMAN. 135, 135-44, 150-61 (1998) (reviewing JAMES BOYLE, SHAMANS, SOFTWARE, AND SPLEENS: LAW AND THE CONSTRUCTION OF THE INFORMATION SOCIETY (1996) and MARGARET JANE RANDI, CONTESTED COMMODITIES (1st ed. 1996)); David Lange, *Recognizing the Public Domain*, 44 LAW & CONTEMP. PROBS. 147, 171-78 (1981).

<sup>96</sup> See Fisher, *supra* note 1, at 33, 35.

In a critical fashion, the concept of social planning draws from orthodox justifications of intellectual property. As an aspirational project, it is an ongoing inquiry designed to respond to the dynamics and never-ending debates about the role of intellectual property rights in society. Thus, it seeks to explore the shortcomings of orthodox theories as applied to real cases in order to create space for the evolution of a social-policy oriented and/or public consideration in intellectual property rights.<sup>97</sup> This involves the explanation of the “growth of intellectual property rights where traditional justifications for intellectual property do not [in a way that demonstrates] intellectual property [law]’s social effect and. . . [its role] as a tool for crafting cultural relations.”<sup>98</sup> The social planning school of thought aspires towards a regime of intellectual property rights that advances a balanced cultural and a balanced competing stakeholders’ vision of intellectual property. It is essentially interested in the “role played by intellectual [property] works in the processes of social dialogue”<sup>99</sup> and, by extension, social change.

According to Fisher, social planning is entrenched “in the proposition that property rights in general—and intellectual-property rights in particular—can and should be shaped so as to help foster the achievement [of a] just and attractive culture,”<sup>100</sup> and perhaps more appropriately, a just and attractive society. Intellectual property provides a context for the creative expression of people’s interests in a wide array of political, economic, social and cultural configurations at individual, community, national and global scales.<sup>101</sup> Thus, it plays a critical role, worthy of continued scrutiny, in “bolstering [and undermining] the discursive foundation of a democratic culture and civic association,”<sup>102</sup> and in the economic and cultural empowerment and disempowerment of nations and peoples.<sup>103</sup> It also mediates and escalates tensions inherent in societal relations. Finally, in the lens of social planning, intellectual property must strive to balance the utilitarian and instrumentalist economic arguments of orthodox theories with the need to increase the sphere of “‘public domain’ available for creative manipulation”<sup>104</sup> and expression.

Its evolutionary status is conceded. However, like all conventional theories, the social planning narrative of intellectual

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<sup>97</sup> *Id.*

<sup>98</sup> Madhavi Sunder, *IP<sup>3</sup>*, 59 STAN. L. REV. 257, 258 (2006).

<sup>99</sup> Craig, *supra* note 7, at 1.

<sup>100</sup> Fisher, *supra* note 1, at 6.

<sup>101</sup> *Id.* at 7.

<sup>102</sup> *Id.*

<sup>103</sup> *Id.*

<sup>104</sup> *Id.* See also COOMBE, *supra* note 5; Lessig, *supra* note 16, at 768.

property has its drawbacks. In a way, social planning appears to be an intellectual appeal for a return to the conceptual ideals of the intellectual property system, emphasizing the imperative for fair and equitable balancing of competing private and public interests and other inherent tensions implicated in intellectual property as an instrument of both law and policy.<sup>105</sup> Apart from the reservation about social planning's yet-to-crystallize theoretical status, the social planning approach puts too much emphasis on the amorphous concept of culture as if it is the only intellectual property paradigm. Also, the social planning vision is inherently paternalistic in its less democratic espousal of a vision of a desirable society. Such paternalism contrasts with the putative neutrality and objectivity of pre-existing theoretical orthodoxy in intellectual property law. It is hardly surprising that, in practice, courts prefer economic and other orthodox arguments to those based on social planning.<sup>106</sup>

The imperative for a competing vision of intellectual property in relation to prevailing theoretical orthodoxy is a reflection of the dynamic character of intellectual property. For instance, categories of the subject matters of intellectual property protection continue to expand. They remain open-ended. Similarly, the last several decades have witnessed radical adjustments to hitherto settled boundaries in order to accommodate intellectual property claims on new technological domains<sup>107</sup> in ways that compromise pre-existing exceptions. Just as the social planning theory demonstrates, the dynamism of intellectual property is not limited to its subject matter. In a complementary fashion, it also extends to theoretical discourses. This is so, despite the stranglehold maintained by pre-existing theoretical orthodoxy in intellectual property jurisprudence.

The consequences and imperatives for shifting intellectual property goal posts could not have been more severe, in any other time, than in the extant GKE. The intellectual property dynamics encompassed in the GKE warrants articulation as a logical precursor to future theory and for policy outlook on intellectual property. This is the task of the concluding reflection in Part III of this Article. Before

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<sup>105</sup> In a way, it could be reduced to a critique of the conventional intellectual property theories.

<sup>106</sup> The simplicity, logic and persuasiveness of theoretical orthodoxy of intellectual property makes for judicial efficiency more than the nuances, subtleties, and inherent sophistication in alternative analysis, such as a yet-to-crystallize theory of intellectual property. Moreover, the plasticity of orthodox theories would seem to take care of contributions of novel conceptions such as social planning which lack clear statutory accommodation in intellectual property laws.

<sup>107</sup> For example, intellectual property has been extended to new technologies, notably integrated circuits, software, and to not so new innovations in plant breeding and other advances in the digital and biotechnology arenas.

that, we need to explore in Part II the amorphous concept of GKE as deployed in this article and its complex relationship with intellectual property.

## PART II: DISCERNING THE GKE

### A) THE CONCEPT OF GKE

Conceptually, the “GKE” is bereft of a precise analytical lever. However, in this present analysis, it is not depicted in the literal sense of scarcity or economy of useful knowledge. Rather, the GKE is used here to characterize the ascendancy and rapid transformation of information, often depicted as a synonym of knowledge, and its generation and management, mainly with the help of computer-driven digital technologies in the spheres of economic, research, administration, service delivery and diverse industrial activities, often with special interest in data mining and biotechnology or biological/genetic engineering.<sup>108</sup> One of the major consequences and realities of the GKE is that knowledge or information now constitutes, perhaps, the most crucial factor or tool of production, and has been the most important matrix in overall economic development since the late 20th century.<sup>109</sup> In this account, the generation, ownership, and management, including the manipulation of information, are considered as pivotal in the contemporary global economic order which services, and is in turn, also serviced by the information (or post-industrial) society.<sup>110</sup>

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<sup>108</sup> See PETER F. DRUCKER, *THE AGE OF DISCONTINUITY: GUIDELINES TO OUR CHANGING SOCIETY* 263-86 (1968). Drucker has been credited with pioneering the use, elaboration and popularization of the phrase, “knowledge economy” in chapter 12 of his book. Further insight into the concept of GKE as it relates to the role of intellectual property can be found in PETER DRAHOS & JOHN BRAITHWAITE, *INFORMATION FEUDALISM: WHO OWNS THE KNOWLEDGE ECONOMY?* (2002)

<sup>109</sup> Chidi Oguamanam, *Local Knowledge as Trapped Knowledge: Intellectual Property, Power and Politics*, 11 *J. WORLD INTELL. PROP.* 29, 31, n. 3 (2008). See also DRAHOS & BRAITHWAITE, *supra* note 108; Harry Hillman Chartrand, *Ideological Evolution: The Competitiveness of Nations in a Global Knowledge-Based Economy* (July 2006) (unpublished Ph.D. dissertation, Interdisciplinary Studies, University of Saskatchewan) (on file with the University of Saskatchewan), available at

<http://www.culturaleconomics.atfreeweb.com/Dissertation%204/0.0%20ToC.htm>.

<sup>110</sup> See FRITZ MACHLUP, *THE PRODUCTION AND DISTRIBUTION OF KNOWLEDGE IN THE UNITED STATES* (Princeton Univ. Press 1962); Susan Crawford, *The Origin and Development of a Concept: The Information Society*, 71 *BULL. MED. LIBR. ASS'N*

## B) INTEGRAL ASPECTS AND KEY FEATURES OF THE GKE

As an economic model for post-industrial society,<sup>111</sup> GKE is associated with a number of factors with which it has some form of amorphous relationship in ways that are, sometimes, as complex as they are diverse. An analysis and conceptual articulation of the nature of these relationships is outside the scope of this Article. However, it bears mentioning, first, that the emergence of GKE correlates with or is integral to aspects of globalization.<sup>112</sup> In fact, the GKE has an organic link with globalization. This is demonstrated in the rapid harvesting, transformation, trans-positioning, and transcribing of knowledge and information from multitudes of sites and domains across a borderless global and epistemic milieu.

Second, we have noted that the computer-driven digital revolution is a significant part of the GKE and information society that facilitates the generation, processing, diffusion, and manipulation of sensitive information for global dispersal, application, and exploitation in a neutral fashion.<sup>113</sup> Third, the era of GKE is also one of biotechnology, which marks a radical shift in the life sciences regarding the deployment of plant, animal, and human genetic materials and inherent information in basic and applied research, resulting in unprecedented ramifications for innovation in health, agriculture, drug production, crime, and environmental management.

One underlining feature of all the three factors associated with the GKE is the practical visibility of digital technology in the deployment of vital information and knowledge that advances the neutralization of jurisdictional boundaries<sup>114</sup> and the facilitation of other possibilities of the GKE. Digital technology expands the frontiers of GKE in several respects including the practical translation

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380, 380 (1983) (crediting the origin of the phrase to eminent economist Fritz Machlup).

<sup>111</sup> See DANIEL BELL, *THE COMING OF POST-INDUSTRIAL SOCIETY: A VENTURE IN SOCIAL FORECASTING* (Basic Books 1973).

<sup>112</sup> In its simplest formulation, globalization is a reference to global harmonization, convergences, resistances, and erosions along complex economic, social-cultural, technological, and other diverse and innumerable transformative experiences of nations and peoples since the mid-20th century.

<sup>113</sup> “Neutral” is a reference to the sense in which knowledge, for example dealing with traditional uses of plants, may be taken up from diverse cultural locales, de-contextualized and translated via a putative culturally neutral epistemic application (western science) for global exploitation.

<sup>114</sup> See David R. Johnson & David Post, *Law and Borders—The Rise of Law in Cyberspace*, 48 *STAN. L. REV.* 1367 (1996); see also Dan Jerker B. Svantesson, *Borders On, or Border Around—The Future of the Internet*, 16 *ALB. L.J. SCI. & TECH.* 343 (2006).

of cyberspace or the internet as a domain of creativity, innovation, and wealth creation, and a critical site for socio-cultural interaction and democratic exchange within and across national boundaries.<sup>115</sup> Further, as a result of digitization, the internet has become a knowledge and information-driven system that has not only revolutionized methods of conducting business and public administration, but one that has provided an alternative platform and system for trade and commerce through electronic commerce.<sup>116</sup>

In the area of copyright, digitization poses radical challenges for applicable jurisprudence, requiring reassessment of notions like originality, creativity, and copyright subject matter.<sup>117</sup> Ironically, while facilitating exponential flow of information, digitization has also pushed innovation toward the creation of technology control measures or technological forms of intellectual property to leverage access to vital information. Similarly, it has opened up new legal and policy challenges for copyright, for example, in regard to peer-to-peer (P2P) file sharing, especially in the context of music copyright.<sup>118</sup> In the

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<sup>115</sup> See generally LEGAL ISSUES IN ELECTRONIC COMMERCE (R. L. Campbell ed., 2002).

<sup>116</sup> Electronic commerce refers to buying and selling of goods and services or the practice of commercial exchange in goods and services over the internet and other dedicated computer networks. The same concept when applied to the delivery and accessing of diverse public services to patrons, including citizens, is now referred to as e-governance. For a prophetic treatise of sorts on the concept of electronic commerce, see JIM SNIDER & TERRA ZIPORYN, *FUTURE SHOP: HOW NEW TECHNOLOGIES WILL CHANGE THE WAY WE SHOP AND WHAT WE BUY* (St. Martin's 1992). See also INTERNET CULTURE (David Porter ed., Routledge 1997) (discussing an array of issues implicated in online communication and identity in cyberspace).

<sup>117</sup> The following cases in US, Canada, and Australia underscore the transformation of copyright jurisprudence in the new digital and other technological environment: *Feist Publ'ns, Inc., v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340 (1991); *Tele-Direct (Publ'ns) Inc. v. Am. Bus. Info. Inc.*, [1998] 2 F.C. 22 (Can.); *Telstra Corp. Ltd. v. Desktop Mktg. Sys. Pty Ltd.* (2001) 181 A.L.R. 134 (Austl. F.C.). See also *Théberge v. Galerie d'Art Petit Champlain Inc.*, [2002] 2 S.C.R. 336 (Can.); *CCH Can. v. Law Soc'y of Upper Can.*, [2004] 1 S.C.R. 339 (Can.). See generally, Carys J. Craig, *The Evolution of Originality in Canadian Copyright Law: Authorship, Reward and the Public Interest*, 2 U. OTTAWA L. & TECH. J. 425 (2005) [hereinafter *Evolution of Originality*]; Daniel J. Gervais, *Canadian Copyright post-CCH*, 18 INTELL. PROP. J. 131 (2004); Teresa Scassa, *Distinguishing Functional Literary Works from Compilations: Issues in Originality and Infringement Analysis*, 19 INTELL. PROP. J. 253 (2006).

<sup>118</sup> See, e.g., *A&M Records, Inc. v. Napster Inc.*, 239 F.3d 1004 (9th Cir. 2001) (on contributory infringement for P2P music file sharing), and *Metro-Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd.*, 545 U.S. 913 (2005) (holding that Grokster's peer-to-peer file sharing system that operated only on computers running the Microsoft Windows operating system amounted to infringement of musical copyright). For a scathing critique of the *Napster* decision, see Lessig, *supra* note 16. See Generally, Eliza Shardlow Clark, *Online Music Sharing in a Global Economy: The U.S. Effort*

trademark regime, digitization and the internet have foisted a new jurisprudence around domain name and cyber-squatting, for example, resulting in a re-thinking of the pre-existing understanding of trademark and copyright infringement, as well as entirely new perspectives on jurisdiction.<sup>119</sup> Finally, the scope of intellectual property claims in the virtual world is one issue debate ignited by activities in cyberspace.<sup>120</sup>

The interactive nature of cyberspace has created unexpected emancipation in “alterity”, resistance narrative,<sup>121</sup> parody, satirization, content exclusivity, and refreshingly new discussions and focus on the user as a vital partner in the creative process.<sup>122</sup> Also, cyberspace has opened a new way of evaluating the creative process as an interactive continuum and a practically collaborative and concerted adventure.<sup>123</sup>

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*to Command (or Survive) the Tidal Wave*, 14 MINN. J. GLOBAL TRADE 141 (2004); Ross Dannenberg, *Copyright Protection for Digitally Delivered Music: A Global Affair*, 15 INTELL. PROP. & TECH. L.J. 12 (2006); Robert C. Paisentin, *Unlawful? Innovative? Unstoppable?: A Comparative Analysis of the Potential Legal Liability Facing P2P End Users in the United States, United Kingdom and Canada*, 14 INT’L J.L. & INFO. TECH. 195 (2006).

<sup>119</sup> See Sheldon Burshtein, *Jurisdiction in Internet Trade-Mark and Domain Name*, 20 INTELL. PROP. J. 1 (2006) (considering both Canadian and American law governing jurisdiction in internet trademark and domain name disputes); see also Bradley J. Freeman & Robert J.C. Deane, *Trade-Marks and the Internet: A Canadian Perspective*, 34 U. OF BRIT. COLUM. L. REV. 345 (2001); Julie A. Rajser, *Misunderstanding the Internet: How Courts are Overprotecting Trademarks Used in Metatags*, L. REV. MICH. ST. U. DETROIT C. L. 427 (2001).

<sup>120</sup> See Benjamine Duranske, *SLPTO Offers Second Life Content Creators Suite of Intellectual Property Protection Tools*, VIRTUALLY BLIND, <http://virtuallyblind.com/2007/10/29/slpto-goes-live> (Oct. 29, 2007) (promising real intellectual property protection for virtual assets).

<sup>121</sup> See John Perry Barlow, *A Declaration of the Independence of Cyberspace*, <http://homes.eff.org/~barlow/Declaration-Final.html> (Feb. 8, 1996). While Barlow’s perceptions of cyberspace appears to be exaggerated or extremist, an important, non-disputable aspect of his claims, borne out by studies on the sociology of the internet culture, is that cyberspace empowers a networking of resistance and opposition to convention and general solidarity to communities that otherwise could have been marginalized in the deliberative and social constitutive processes.

<sup>122</sup> See *CCH Canadian Ltd. v. Law Society of Upper Canada*, [2004] 1 S.C.R. 339 (Can.) [hereinafter *CCH*] and *Galarie d’Art Petit Champlain Inc. v. Théberg*, [2002] 2 S.C.R. 336 (Can.); see also *Evolution of Originality*, *supra* note 117, at 430 (arguing that the *CCH* decision marked a transition in Canadian Supreme Court jurisprudence, as the Court searched for a balance between author’s rights and the “public [users’] interest”).

<sup>123</sup> Diverse interactive websites program for unprecedented collaborative endeavors, facilitating the coalescing of experts and skills from across the globe. For example, newer business models such as open source, open-access, and general public license, creative commons license, DevNat, and other sophisticated and targeted models for adaptation and distribution of creative works which capitalize on the non-rivalrous nature of digital materials. Perhaps only a few examples demonstrate this trend

Collectively, the impact and ubiquitous role of digitization as a key component of the GKE in the liberalization of information have consequences for privacy, individual freedom, free enterprise in the market economic model, and aspects of constitutional rights such as free speech and freedom of expression in democratic societies.<sup>124</sup>

Knowledge or information constitutes the defining feature of the post-industrial information society. They are pivotal elements of the GKE. Information and knowledge are intangible and are mainly generated by, and often classified as products of the mind or the intellect. Essentially, they are non-rivalrous in nature. As a mechanism for leveraging the allocation of rights over information and knowledge and their products, intellectual property is the currency of the GKE, now directly implicated in virtually all aspects of our socio-economic life. More than ever before, intellectual property is self-evidently an interdisciplinary subject-matter. It is hardly surprising that in the GKE, law and, of course, lawyers are hardly the super-sovereign discipline and actors with exclusive wisdom on intellectual property issues.<sup>125</sup>

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better than the birth of Wikipedia. *See* DON TAPSCOTT & ANTHONY D. WILLIAMS, *WIKINOMICS: HOW MASS COLLABORATING CHANGES EVERYTHING* (Portfolio 2006) (considering the artistic, cultural, scientific, educational, governmental and economical advantages of peer production and collaboration through Web-enabled communities).

<sup>124</sup> George Takach has described privacy as the first casualty of the information age. The rapid increase in the generation of information and the concerted manner in which such generation and manipulation of information occur not only present tension in regard to proprietary claims around information, but also in regard to the extent of informational privacy of the citizenry and the role of intellectual property right. Issues such as the scope of personal information and ownership of information in specific contexts, such as electronic health data, have implications for intellectual property. In the digital era, copyright and trademark laws are often on a collision course with constitutional rights in relation to free speech and its derivatives. For example, frequently, corporate entities seek to restrict disgruntled employees or consumer advocacy groups from linking or associating the corporation's website/logo with labor-related protests or any other countervailing objectives. *See generally* GEORGE S. TAKACH, *COMPUTER LAW* (2d ed. 2003).

<sup>125</sup> Virtually every sector of our contemporary socio-cultural, economic, and political lives now has to grapple with intellectual property as a matter of policy, law, and society. In addition to statute-based courses in intellectual property rights offered in law schools, recent curriculum developments in intellectual property reflect interdisciplinary approaches in a manner cognizant of the intersections it enjoys with diverse subject matters such as health, bio- and digital technologies, electronic commerce, agriculture, culture, ethics, indigenous knowledge, the environment, and biodiversity. Indeed, intellectual property is no longer an exclusive subject of interest to law schools, as various other disciplines have had to embrace it. *See generally*, Deborah Tussey, *Ipods and Prairie Fires: Designing Legal Regimes for Complex Intellectual Property Systems*, 24 *SANTA CLARA COMPUTER & HIGH TECH. L.J.* 105, 120 (2007) (advocating interdisciplinary approach to developing

## C) THE GKE, INTELLECTUAL PROPERTY, AND BIOPIRACY

Digital technologies are complicit in the phenomenon of biopiracy, which is one of the important incidences of the GKE. Biopiracy is the systemic transfer, mainly via the patent system, of biological resources and associated bio-cultural knowledge and information from the centers of global biodiversity and the homes of the world's indigenous and local communities, to the centers of Western industrial complexes.<sup>126</sup> Biopiracy is an offshoot of biotechnology which, as already indicated, is a feature of the new GKE. By some accounts over seventy-five percent of global biological resources and associated biological diversity are located in developing countries, the home to most indigenous and local communities.<sup>127</sup>

Biological resources are the critical raw material for biotechnology. In the GKE, increased concentration of research and development by Western industrial and scientific complexes on plant and animal genetic resources targets the biological resources in developing countries and other centers of origin of global biodiversity. A combination of bio- and digital technologies facilitate the harnessing of biological resources and associated indigenous or local knowledge in the developing countries of the South; a trend which analysts have associated with a unidirectional transfer of wealth and knowledge.<sup>128</sup> In regard to knowledge, biological diversity is central to the epistemic and ecological worldview of many non-western, indigenous, and local communities of the global South. Their rich biological resources and biological diversity is the mainstay of the peoples' medicinal, agricultural, environmental knowledge and stewardship.<sup>129</sup> Also, for non-Western peoples, biological resources provide a vital platform for complex cultural practices, for practical

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intellectual property systems, including cooperation among disciplines such as business, economics, statistics, and cognitive science).

<sup>126</sup> See MGBEOJI, *supra* note 9, at 131; Graham Dutfield, *TRIPS-Related Aspects of Traditional Knowledge*, 33 CASE WESTERN RES. J. INT'L L. 233, 237-38 (2001). See generally VANDANA SHIVA, *BIOPIRACY: THE PLUNDER OF NATURE AND KNOWLEDGE* (1997).

<sup>127</sup> See INTERNATIONAL LAW AND INDIGENOUS KNOWLEDGE, *supra* note 83.

<sup>128</sup> See Anupam Chander & Madhavi Sunder, *The Romance of the Public Domain*, 92 CAL. L. REV. 1331, 1346-47 (2004); see also Oguamanam, *supra* note 93, at 491.

<sup>129</sup> See Patel, *supra* note 83; see also BATTISTE & HENDERSON, *supra* note 90.

engagement with their overall environment, and for the translation of their knowledge in addressing the challenges of their lived realities.<sup>130</sup>

Since the 1990s, indigenous ecological or environmental knowledge has been recognized as an aspect of received wisdom in international initiatives on biodiversity conservation and environmental management.<sup>131</sup> In part, this stems from the realization that the indigenous, or local, knowledge of non-Western peoples is inseparable from their rich biological resources and is imbued with the ethics of sustainability. Consequently, the focus of biotechnology research and development on those resources is an exercise not only to appropriate the resources<sup>132</sup> but, perhaps most importantly, to create the conditions for the uptake or transposition of associated local knowledge into Western scientific episteme.<sup>133</sup> Biopiracy is less of a resource transfer issue than it is one of knowledge appropriation in which intellectual property plays a critical role.

The emergence of the GKE is accompanied by radical transformation of intellectual property jurisprudence. Intellectual property has been transformed from being a subject-matter of national laws to one governed at the global or international level.<sup>134</sup> Accordingly, intellectual property has ceased to be a handy instrument at the disposal of sovereign nations to leverage their peculiar socio-economic interests.<sup>135</sup> From being an acknowledged tool in restraint of trade, intellectual property has become, perhaps, one of the most proactive policy instruments in the promotion of trade. The pathway to this epochal metamorphosis in intellectual property was charted in a

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<sup>130</sup> See BATTISTE & HENDERSON, *supra* note 90; Patel, *supra* note 83; *see also* MGBEOJI, *supra* note 9; INTERNATIONAL LAW AND INDIGENOUS KNOWLEDGE, *supra* note 83; SHIVA, *supra* note 75.

<sup>131</sup> This is evident in the recognition of indigenous knowledge in virtually all of the instruments agreed to in the 1992 United Nations Conference on Environmental and Development (the Rio Earth Summit), including Agenda 21, the Forest Principles, the Convention on Biodiversity. *See* Chidi Oguamanam, *Protecting Indigenous Knowledge in International Law: Solidarity Beyond National Borders*, 8 L. TEXT CULTURE 191, 209 & n.18 (2004).

<sup>132</sup> *See* MGBEOJI, *supra* note 9; SHIVA, *supra* note 126.

<sup>133</sup> David P. Fidler, *Neither Science Nor Shamans: Globalization of Markets and Health in the Developing World*, 7 IND. J. GLOBAL LEGAL STUD. 191, 212-13 (1999); Chidi Oguamanam, *Between Reality and Rhetoric: The Epistemic Schism in the Recognition of Traditional Medicine in International Law*, 16 ST. THOMAS L. REV. 59, 70 (2003) (discussing various ways and factors that facilitate the uptake of traditional medicine into western biomedical orthodoxy).

<sup>134</sup> *See* Drahos, *Universality of Intellectual Property*, *supra* note 1.

<sup>135</sup> This is especially so with the coming into effect of the TRIPS Agreement which commits all member nations of the WTO to a minimum standard of intellectual property protection, with little or no regard to individual members' socio-economic priorities and needs.

non-democratic and coercive process that birthed the TRIPS Agreement in 1995.<sup>136</sup> TRIPS is the single most authoritative international instrument on intellectual property. It imposes a base standard for intellectual property protection on the member states of the WTO.<sup>137</sup> TRIPS marks a shift of sorts in the institutional framework for global intellectual property law making and governance from the World Intellectual Property Organization (“WIPO”) to the WTO.<sup>138</sup> This institutional power play, which resulted in the usurpation of WIPO’s hitherto unchallenged sphere of influence in global governance of intellectual property by the WTO,<sup>139</sup> is credited to the singular ideological initiative by the United States in linking intellectual property to trade at the Uruguay Round negotiations on the General Agreement on Trade and Tariffs (“GATT”).<sup>140</sup>

It is hardly a coincidence that these shifts in intellectual property jurisprudence occurred at the time of transition from an industrial to a post-industrial, or information, society, the era in which GKE emerged. Elsewhere, an analyst has observed that “TRIPS ... represents an IP handmaiden ... groomed for the service of

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<sup>136</sup> See Doris-Estelle Long, ‘Democratizing’ Globalization: Practicing the Policies of Cultural Inclusion, 10 CARDOZO J. INT’L & COMP. L. 217, 242 (2002); J.H. Reichman, *The TRIPS Agreement Comes of Age: Conflict or Cooperation*, 32 CASE W. RES. J. OF INT’L L. 441, 448 (2000); see also DRAHOS & BRAITHWAITE, *supra* note 108, at 12 (charging that the current international intellectual property order represented by the TRIPS Agreement, “largely represents the failure of the democratic process, both nationally and internationally”).

<sup>137</sup> See Fidler, *supra* note 133, at 209.

<sup>138</sup> See Marley L. Cheek, *The Limits of Informal Regulatory Cooperation in International Affairs: A Review of Global Intellectual Property System*, 33 GEO. WASH. INT’L L. REV. 277, 292 (2001); Laurence Helfer, *Regime Shifting: The TRIPS Agreement and New Dynamics of International Lawmaking*, 29 YALE J. INT’L L. 1, 20-23 (2004); see also Chidi Oguamanam, *Regime Tension in the Intellectual Property Arena: Farmers’ Rights and Post TRIPS Counter Regime Trends*, 29 DALHOUSIE L. J. 413, 415-20 (2006) (Can.); Peter K. Yu, *Currents and Cross-Currents in the International Intellectual Property Regime*, 38 LOY. L.A. L. REV. 323, 418 (2004). See generally Ruth L. Okediji, *The International Relations of Intellectual Property: Narratives of Developing Country Participation in the Global Intellectual Property System*, 7 SINGAPORE J. OF INT’L & COMP. L. 315 (2003).

<sup>139</sup> See Christopher May, *The World Intellectual Property Organization*, 11 NEW POL. ECON. 435 (2006) (U.K.) (arguing WTO’s location of intellectual property in the international trade arena via the TRIPS Agreement dilutes, if not dissolves, the development thrust of WIPO); see also Gerald J. Mossinghoff & Ralph Oman, *The World Intellectual Property Organization: A United Nations Success Story*, 79 J. PAT. & TRADEMARK OFF. SOC’Y 691, 692-93 (1997). But see Paul Salmon, *Cooperation Between the World Intellectual Property Organization and the World Trade Organization*, 17 ST. JOHN’S J. LEGAL COMMENT. 429, 432 (2003) (arguing that “the [failed] mission of WIPO was part of the reason why intellectual property discussions moved to WTO”).

<sup>140</sup> See Drahos, *Universality of Intellectual Property*, *supra* note 1, at 9.

globalization and internationalization of markets.”<sup>141</sup> Intellectual property is required to play a critical role in supporting the “efficiency and distributive effects of the GKE.”<sup>142</sup> Unprecedented technological breakthroughs in digitization and their ramifications in all sectors of socio-economic activities, as well as the growth of biotechnologies, compelled a stronger intellectual property regime in which “proPERTIZATION” of knowledge is as central as an aggressive attempt at creating artificial scarcity over information.<sup>143</sup> This approach to intellectual property jurisprudence has been described by renowned authors DraHos and Braithwaite as a perpetuation of “hegemony based on knowledge.”<sup>144</sup> In their words, “the logic of hegemonic power based on knowledge is to lock up knowledge, to deal with ignorance selectively, to create a morality that judges knowledge to be a private good and to punish through the criminal apparatus of the state those who steal knowledge.”<sup>145</sup>

As a one-size-fits-all approach to intellectual property, the TRIPS Agreement is based on the United States’ domestic intellectual property standards. Strikingly, it extends intellectual property protection, specifically patents, to virtually all spheres of innovation and creativity, essentially forbidding any discrimination on the basis of the type of technology or innovation.<sup>146</sup> TRIPS tightens critical leeway through which developing countries had previously deployed intellectual property in furtherance of national policy objectives.<sup>147</sup>

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<sup>141</sup> See Chidi Oguamanam, *Localizing Intellectual Property in the Globalization Epoch: The Integration of Indigenous Knowledge*, 11 IND. J. GLOBAL LEGAL STUD. 135, 164 (2004).

<sup>142</sup> Peter DraHos & John Braithwaite, *Hegemony Based on Knowledge: The Role of Intellectual Property*, 21 L. IN CONTEXT 204, 204 (2004).

<sup>143</sup> *Id.* at 205 See also DRAHOS & BRAITHWAITE, *supra* note 108.

<sup>144</sup> See DraHos & Braithwaite, *supra* note 142, at 204.

<sup>145</sup> *Id.* at 204. Under the TRIPS Agreement there is a stiffer sanction for an errant country on the subject of intellectual property, unlike the pre-TRIPS WIPO framework that lacked any credible enforcement mechanism. Also, the United States before and after the TRIPS Agreement, did not relent in its aggressive use of sanctions via the United States Trade Representative (“USTR”) office in the negotiation of post-TRIPS bilateral intellectual property agreements with economically weaker nations, thus, ensuring a climate in which intellectual property was used as a tool of political, economic and commercial coercion. *Id.* at 214.

<sup>146</sup> See TRIPS Agreement, *supra* note 23, art. 27, ¶ 1 (providing that “patents shall be available for any inventions, whether products or processes, in all fields of technology”).

<sup>147</sup> This is exemplified in TRIPS’ tight regime on compulsory licensing under Article 31. *But see* World Trade Organization, Ministerial Declaration of 14 November 2001, WT/MIN(01)/DEC/1, 41 I.L.M. 746, ¶ 6 (2002) (“ . . . that WTO Members with insufficient . . . manufacturing capacities in the pharmaceutical sector could face difficulties in making effective use of compulsory licensing under the TRIPS

Not surprisingly, the post-TRIPS era marks a heightening of tensions between many technology and information rich countries and their counterparts in the developing countries.<sup>148</sup> Shortly after it came into effect, the devastating consequences of a hegemonic intellectual property order imposed by TRIPS have been felt at diverse intersections, including health and access to essential drugs; human rights, biodiversity conservation, bioprospecting and biopiracy; market access and balance of trade; and technology transfer and questions about indigenous knowledge.<sup>149</sup> Each of these implicates a complex intellectual property instigated socio-economic and moral crisis, resulting in the marginalization of the developing countries and the rest of the world's indigenous peoples. This state of affairs facilitates a trend in which second comers easily fritter away indigenous knowledge and resources in ways that aggravate the development divide between them and the rest of the world.<sup>150</sup>

#### D) INTELLECTUAL PROPERTY EXPANSIONISM IN THE GKE

By broadening the scope of intellectual property protection, specifically patents, the TRIPS Agreement constrains the pre-existing discretion of sovereign nations to exclude certain subject matters, such as pharmaceuticals, agro-chemicals, etc., from patentability as national interests may dictate.<sup>151</sup> In the new GKE where "proptertization" of knowledge assets is the norm, TRIPS' approach of broadening the scope of intellectual property rights appears to have had fundamental impact on biotechnology innovation. Perhaps, next to variegated uses of data generated from diverse contexts as the core of digital and computing technologies, one of the major focuses of data collection or, more appropriately, information/knowledge collection in the GKE is on the life sciences or in the biological arena.

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Agreement [and] . . . instruct[ed] the [TRIPS] Council to find an expeditious solution to this problem . . .").

<sup>148</sup> See *Hegemony*, *supra* note 142, at 214.

<sup>149</sup> Tshimanga Kongolo & Folarin Shyllon, *Panorama of the Most Controversial IP Issues in Developing Countries*, 26 EUR. INTELL. PROP. REV. 258 (2004) (U.K.). See also Helfer, *supra* note 138; Reichman, *supra* note 136.

<sup>150</sup> The list of crops or plant genetic resources implicated in the practice of biopiracy includes the following: Rosy Periwinkle (Ethiopia), Neem and Turmeric (India), Basmati (Indo-Pakistan), Enola Bean (Mexico), Hoodia Cactus (South Africa), Cow Pea (Nigeria), and Karela juice (India).

<sup>151</sup> For instance, India and most developing countries never extended patent protection to pharmaceuticals and agricultural innovations and processes. Again, like most developing countries, India has since revised its Patent law to accommodate categories, including pharmaceutical products hitherto outside the province of patent protection. See Murray Lee Eiland, *Patenting Traditional Medicine*, 89 J. PAT. & TRADEMARK OFF. SOC'Y 45, 59-60 (2007).

Intellectual property's historically recognized exceptions for *products of nature*, naturally-occurring phenomena, discoveries, and life forms are now compromised by the exigencies of biotechnology.<sup>152</sup> The same lax approach is adopted for the putative or inchoate exemption of business methods.<sup>153</sup> Similarly, the standard of originality is now, more than before, an aggravated form of inexact science in copyright law. In the digital era, there is an attempt to accommodate, for purpose of copyright protection, different representations of data that would otherwise have traditionally qualified as facts outside the copyright domain.<sup>154</sup>

The advent of biotechnology marks a radical shift in intellectual property from industrial or techno-scientific invention to biologically-centered innovations, a shift from the physical sciences to life sciences. Under the new global intellectual property order at the service of GKE, patents extend to all forms of technologies, including biotechnology, without discrimination. It also extends to plants, plant varieties and animal resources, their associated biological processes for their production,<sup>155</sup> human cell lines, DNAs, genes, etc.

This new regime of extension of intellectual property rights to biological or life sciences started in the United States in the 1970s through to the 1980s when it was affirmed by the famous endorsement of patents on "anything under the sun that is made by man."<sup>156</sup> What started by modest pressure from the horticultural industry in the United States, quickly turned to the realm of all plant and animal genetic materials in that country before being extended to other industrialized countries via a multilateral treaty, namely the

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<sup>152</sup> See Mgbeoji & Allen, *supra* note 26, at 85-86; see also Bagley, *supra* note 24, at 484-86.

<sup>153</sup> While the basis upon which USPTO did not allow patents on business methods remained unclear and would seem not to be borne out by the patent history in that country (in 1799 a counterfeit note detecting device became the subject of patent protection), increased computer and internet driven inventions with commercial or business ramifications have forced USPTO to backtrack from its putative freeze on business method patents. In the 1998 decision in *Street Bank & Trust Co. v. Signature Financial Group, Inc.*, the court preferred a textual analysis of the Patent Act and held that method of doing business was not an excluded subject matter under the Act. *St. Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1375 (D.C. Cir. 1998), *abrogated by In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008). The decision opened the way for business method patents, an opening that has since been capitalized on by the digital technology and software subsector.

<sup>154</sup> See *Evolution of Originality*, *supra* note 117 (regarding the debate over originality in copyright); see also Ray K. Harris & Susan Stone Rosenfield, *Copyright Protection for Genetic Databases*, 45 JURIMETRICS J. 225, 229-32 (2005).

<sup>155</sup> TRIPS Agreement, *supra* note 23, art. 27.

<sup>156</sup> *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (echoing a Senate committee report). See Bagley, *supra* note 24, at 485.

International Convention for the Protection of New Plant Varieties (“UPOV”), which champions the concept of plant breeders’ rights as a fairly novel regime of intellectual property.<sup>157</sup> It crystallized at the global level in the 1990s via TRIPS. Today, judicial intervention in many jurisdictions, including the United States, Canada, Europe, and Japan, now extend patent protection, in one way or another, to life forms.<sup>158</sup> The same is true of international law making in the intellectual property arena.

This new approach to intellectual property has prioritized the economic benefits of biotechnology-related knowledge and information over social policy considerations that traditionally restrained the extension of intellectual property to the realm of life.<sup>159</sup> Economic benefits now trump social costs, cultural sensitivities, and philosophical and religious reservations regarding the “propriety” of knowledge, and has extended intellectual property, particularly to the realm of life forms.<sup>160</sup> These reservations are ignored by universalizing Western intellectual property standards under the TRIPS Agreement.

The gravitation of intellectual property interests from innovation in physical sciences and mechanical inventions toward advances in genetic or biotechnology endeavors is characterized by a lowering of the threshold for patentability, and expanding the scope of patent protection in disregard to traditional exemptions, especially those relating to products of nature and naturally occurring phenomena.<sup>161</sup> The same is the case with the established standards of utility which are now less rigorously applied.<sup>162</sup> Perhaps, nowhere is the trend in the extension of intellectual property to life forms and the

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<sup>157</sup> See Oguamanam, *IP Rights*, *supra* note 80, at 280; see also Oguamanam, *supra* note 76, at 61; Oguamanam, *supra* note 138, at 420.

<sup>158</sup> Perhaps, there is to date, no better illustration of this trend than in the famous Harvard or oncomouse patent—a mouse genetically modified/predisposed to cancer for cancer research by researchers Philip Leder and Timothy A. Stewart at Harvard University. See Bagley, *supra* note 24, at 498. Patent for this “oncomouse” was granted in the United States, numerous European countries, and Japan. See *Harvard College v. Canada (Commissioner of Patents)*, [2002] 4 S.C.R. 45, 2002 SCC 76 (Can.) In Canada, the mouse ran into troubled waters when the Supreme Court drowned it in the sea of the patentability debate by holding that it was not a patentable subject matter or a “manufacture” pursuant to s.2 of Canada’s Patent Act. See *id.*; see also Bagley, *supra* note 24 (for an analysis of the US, Canadian and European approaches to the oncomouse patent).

<sup>159</sup> Bagley, *supra* note 24, at 481; Oguamanam, *supra* note 76, at 59-60; Mgbeoji & Allen, *supra* note 26, at 83-84.

<sup>160</sup> Oguamanam, *supra* note 76, at 59-60; Mgbeoji & Allen, *supra* note 26, at 83-84.

<sup>161</sup> Mgbeoji & Allen, *supra* note 26, at 86.

<sup>162</sup> *Id.*

lowering of the standards of utility more sharply demonstrated than in the patentability of genes and genetic materials.<sup>163</sup>

Theoretically, genetic materials compare to chemical compounds which have been the subjects of patents for a longer time.<sup>164</sup> Even though gene fragments are akin to chemicals, strictly, patent protection would apply only in relation to “isolated and purified DNA fragments, full length genes and protein products of genes provided their functions are known.”<sup>165</sup> Ironically, the requirement for proper identifications of gene function or linking a gene sequence with its clear biological functions as proof of utility was ignored at the early onset of gene patents.<sup>166</sup>

Contemporary jurisprudence on patentability of genetic material now includes granting of patents on gene sequences with unknown or indeterminate functions under very presumptuous and speculative circumstances. Put another way, current practice in regard to gene patents is akin to “patenting discovery.”<sup>167</sup> Given the nature of genetic material and its role in the biotechnology endeavors as a critical basic research tool, a stricter regime of patentability for gene sequences is called for. The opening up of the genetic subject matter or gene sequences to the patent process has “shortchange[d] the society by granting the inventors large and expansive rights over ‘areas’ or ‘spaces’ which have indeterminate boundaries and, thus, unfairly constrict the ability of members of the public in conducting research in such areas.”<sup>168</sup> The more troubling part is that patent on gene resources with indeterminate functions freezes, or at best compromises, future opportunity to know more about the gene(s) and the proteins associated with its sequence. “Bottled up” in such patents are indescribable and unknown functions and potential uses that are beyond comprehension or imagination. Bogus gene patents have the potential to circumscribe indigenous peoples’ dealings with plant and animal resources.<sup>169</sup> Given that such dealings occur outside the formal scientific matrix, it may not be easy to determine when, and which, indigenous experiences with a particular genetic resource contravene the open-ended rights of a gene patent holder.

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<sup>163</sup> *Id.*

<sup>164</sup> *Id.*

<sup>165</sup> *Id.*

<sup>166</sup> *Id.* at 87

<sup>167</sup> *Id.* at 86.

<sup>168</sup> *Id.* at 88.

<sup>169</sup> *But cf.* Heald, *supra* note 3 (arguing that patents on genetic materials do not inhibit indigenous and local communities from traditional application of their traditional knowledge relating to such genetic materials).

## E) THE CHANGING RESEARCH LANDSCAPE

Gene patents reveal a worrisome trend regarding the negative impact of intellectual property on research into the GKE. Knowledge-based assets, such as genetic resources, now prod a new research culture in a post-industrial information society. This research culture is supervised, for the most part, by intellectual property rights which, as we have noted, is the currency of the GKE. It is now largely the norm for public institutions, such as universities, to partner with the private sector in a new model of research and development.<sup>170</sup> Under this new framework, the public interest is vulnerable to being compromised. Indeed, the public may be shortchanged twice. First, gene patents lock up unquantifiable platform information, thereby depriving the public access to it. Second, as publicly funded institutions, the role of universities in such research partnerships is one that inadvertently or potentially results in the ultimate diversion of public funds to the private sector. Thus, the public partly subsidizes a research initiative in which it is short-changed. In reality, hardly does the public get rewarded for its contribution through, for example, a fair pricing and access mechanism to the resulting research product or its other benefits.

Under this research and development matrix, the delicate and blurry boundary between basic and applied research disappears, not surprisingly, at the expense of basic research. The private sector's interest in research focuses on applied research, and in ways that understate the link between basic and applied research.<sup>171</sup> In this emerging novel research and development dynamic, the private sector wants to play an interventionist role, setting and sometimes influencing or skewing the research agenda, and creating in the

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<sup>170</sup> This practice is sanctioned in the United State by the Bayh-Dole Act, also known as the Universities and Small Business Patent Procedures Act, a 1980 United States federal law that empowered universities with commercial rights to research results, and encouraged universities' active engagement in the commercialization of innovations arising from their research activities. 35 U.S.C. §§ 200-12 (2006). In Canada, different policy initiatives, since the end of the WWII, were put in place to support commercialization of research in the universities. See Matt Herder, *The Rhetoric of Innovation* (2006) (LL.M Thesis, Dalhousie Law School) (chronicling, *inter alia*, transitions in Canada's institutional framework for the promotion of research and developments in various technological arenas) (on file with Dalhousie Law School). For insight into the dynamics of universities' relations with corporate bodies in the context of biotechnology research, see generally MARTIN KENNEY, *BIOTECHNOLOGY: THE UNIVERSITY INDUSTRIAL COMPLEX* (1986).

<sup>171</sup> Mgbeoji & Allen, *supra* note 26, at 89 (arguing that "commercially-oriented research does not generally produce the innovative impact within the scientific community as research designed at characterizing basic biochemical or genetic processes."). See also Downie & Herder, *supra* note 63, at 32.

process, an ethically susceptible public-private partnership. In such a context, the culture of research as a public enterprise, as well as the independence of the researcher/scholar, is rendered susceptible. Similarly jeopardized is the role of the university as a public trust.

Instead of serving as keen disseminators of important information, researchers are getting accustomed to hoarding or delaying the publishing of the results of their research, sometimes for years, pending the grant of a patent.<sup>172</sup> In many cases and in terms of promotion in academia, the number of patents a researcher holds ranks superior to publications. The same is true for ranking of research-intensive departments or academic programs in universities and research institutions.<sup>173</sup> When private interests sponsor research, little consideration is given to basic research and the publication or timely dissemination of research results. In all of these, the government is happy to relinquish or scale back its commitment to the universities without weighing the ultimate social costs of this form of role abdication, especially its implications for research and academic integrity and the public role of universities. In a nutshell, this has been the crisis of the research and development model for biotechnology's symbiotic relationship with the universities.<sup>174</sup>

For the most part, because of intellectual property, research communities have broken into clusters of secretive and suspicious colleagues looking apprehensively over one another's shoulders regarding intellectual property theft.<sup>175</sup> Over all, the effect of an uncritical extension of patents on mere gene sequences with inadequate regard to their biological functions undermines the course of biological and biotechnology research, which relies on obtaining or building on vital information from diverse sources. In the biotechnology arena, there is a scramble for gene patents akin to the gold rush. Discerning researchers capitalize on the porous jurisprudence on gene patents to execute a policy of deliberate fencing or gene-grabbing, or what analysts have tagged the cultures of "patent-

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<sup>172</sup> See Mgbeoji & Allen, *supra* note 26, at 87 (reporting that in a survey of about 2100 life science researchers, it was found that almost 20% reported delaying, by over a six month period, the publication of research results for intellectual property reasons); see also Downie & Herder, *supra* note 63, at 37.

<sup>173</sup> Downie & Herder, *supra* note 63, at 28.

<sup>174</sup> See KENNEY, *supra* note 170 (hinting at the disruptive influences biotechnology industries have for scholarly traditions in universities, and the implications for the role of the universities and their relationships with and obligations to the public).

<sup>175</sup> Downie & Herder, *supra* note 63, at 37 ("[T]rust between students and supervisors as well as between students can be undermined, as they may worry that the other would steal potentially valuable ideas or will intentionally or accidentally disclose them to others before the IP in the research is harnessed.").

first-ask-questions-later”<sup>176</sup> and “patent-first-litigate-later,”<sup>177</sup> in order to ward off competition.<sup>178</sup> This gene-grab syndrome totally undermines the nature of research in biotechnology, making it extremely expensive and impacting on and frustrating the cost and process of doing research with negative consequence on the price of resulting products and on an entire society. Nothing illustrates this better than the ongoing imbroglio over access to patented drugs, genetically modified seeds, other products of biotechnology and a host of ethical issues.<sup>179</sup>

#### F) CREDIBILITY CRISIS IN THE NEW INTELLECTUAL PROPERTY ORDER

Propertizing knowledge via intellectual property in the GKE mainly benefits the technologically rich countries. It is no surprise that the sea change in intellectual property jurisprudence, introduced by the TRIPS Agreement, occurred at the behest of the United States-led technologically strong nations.<sup>180</sup> However, the United States’

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<sup>176</sup> See Bagley, *supra* note 24.

<sup>177</sup> Mgbeoji & Allen, *supra* note 26.

<sup>178</sup> The controversy generated by the Utah-based Myriad Genetics, Inc. over its attempt at exclusive administration of cancer prediction tests pursuant to its patents on BRCA1 and BRCA2 genes that test for genetic predisposition to Cancer is usually cited as an extreme example of the wrong end of gene patents. Relying on its United States and other international patents, Myriad Genetics embarked on aggressive exercise of its right as an exclusive provider for genetic testing for hereditary breast cancer, putting it on a collision course with a number of countries in Europe, and some Canadian provinces. At a point, Myriad’s tests were more expensive to alternatives, up to a difference of \$2650. For a detailed account of gene patenting in the context of BRCA1 and BRCA2, Myriad genetic, and associated controversies in the United States, Canada, and Europe, see Bryn Williams-Jones, *History of a Gene Patent: Tracing the Development and Application of Commercial BRCA Testing*, 10 HEALTH L. J. 123 (2002).

<sup>179</sup> See Bitu Amani & Rosemary Coombe, *The Human Genome Diversity Project: The Politics of Patents at the Intersection of Race, Religion, and Research Ethics*, 27 LAW & POL’Y 152 (2005); Josephine Johnston & Angela A. Wasunna, *Patents and Biomedical Research and Treatments: Examining Concerns, Canvassing Solutions*, HASTINGS CTR. REP., (SPECIAL REPORT), Jan.-Feb 2007, at S1; Daniel K. Kevles & Ari Berkowitz, *The Gene Patenting Controversy: A Convergence of Law, Economic Interests, and Ethics*, 67 BROOK. L. REV. 233 (2001); Carlos-Scott Lopez, *Intellectual Property Reform for Genetically Modified Crops: A Legal Imperative*, 20 J. CONTEMP. HEALTH L. & POL’Y 367 (2004).

<sup>180</sup> Drahos & Braithwaite, *supra* note 142 (articulating the role and influence of the US pharmaceutical industrial complex on the emergence of the TRIPS Agreement as an economic policy strategy of the United States). For a detailed account of other factors and dynamics that influenced the text of the TRIPS Agreement, see DANIEL GERVAIS, *THE TRIPS AGREEMENT: DRAFTING HISTORY AND ANALYSIS* (3d ed. 2008). For insight into the political dynamics of TRIPS implementation, see CAROLYN DEERE, *THE IMPLEMENTATION GAME: THE TRIPS AGREEMENT AND THE*

vision of intellectual property in the GKE, as elaborated in the TRIPS Agreement, did not come unchallenged. The Agreement awakened unparalleled consciousness over both the devastating consequences and the potential of intellectual property for many at the receiving end of US hegemony over the operation of the GKE.

First, the legitimacy of the TRIPS Agreement continues to be contested, necessitating lame, but symbolic, attempts to revisit that document in light of human rights issues and variegated development imperatives that were completely ignored from the beginning.<sup>181</sup> Second, developing countries and indigenous communities' interests in intellectual property have been aroused such that they now actively engage, in a reflective and sobering manner, in charting a vision of intellectual property that addresses their interests.<sup>182</sup> Third, never before has the interdisciplinary nature and ramifications of intellectual property been felt so much as to galvanize the coalescing of an expansive array of stake holders in the elaboration of policy discussions on the future of intellectual property.<sup>183</sup>

The foregoing trend facilitates forms of strategic resistance toward the WTO, and the TRIPS Agreement as a superior forum, and

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GLOBAL POLITICS OF INTELLECTUAL PROPERTY REFORM IN DEVELOPING COUNTRIES (2009).

<sup>181</sup> One symbolic example of this trend is the 2001 Doha Initiative, also known as the Development Round, of the WTO trade negotiations, which focused on the TRIPS Agreement and Public Health. World Trade Organization, Ministerial Conference of 14 November, 2001, WT/MIN(01)/DEC/1 (2001). This initiative gave rise to the Declaration on the TRIPS Agreement and Public Health—an attempt to “massage” the TRIPS Agreement in ways that respond to critics of the agreement who hold it culpable as an example of globalization’s negative effect, one that aggravates the development gaps and hardships in non-industrialized or developing countries as evident in lack of access to patented drugs in those countries, especially at a time when HIV/AIDS was creating a situation of national health crisis and emergency. World Trade Organization, Ministerial Declaration of 14 November, 2001, WT/MIN(01)/DEC/2 (2001).

<sup>182</sup> Many discourses on the regime dynamics in international intellectual property rights identify alternative and concurrent for a in which developing countries have explored counter-regime responses to the TRIPS Agreement in their bid to enunciate a new vision of intellectual property. Perhaps the most notable of the diverse for a is the United Nations Convention on Biological Diversity (“CBD”) which provides an outlet for the elaboration of options for the protection of indigenous and local knowledge practices ignored in the TRIPS Agreement. See MGBEOJI, *supra* note 9.

<sup>183</sup> Many NGOs and intergovernmental organizations that focus on health and access to essential medicines, human rights, the environment, biodiversity conservation, indigenous peoples and indigenous knowledge, and community development continue to play proactive roles at national and international fora. See Rosemary Coombe, *The Recognition of Indigenous Peoples’ and Local Community Knowledge in International Law*, 14 ST. THOMAS L. REV. 275 (2001); see also Oguamanam, *supra* note 131.

as the most authoritative agreement for intellectual property governance. At the institutional level, the WIPO continues to tread softly in its delicate and often tense relationship with WTO, engaging in the process of self-recreation, soul-searching and a quest for relevance in a post-TRIPS intellectual property era.<sup>184</sup> While keeping touch with other sites for intellectual property law making, WIPO has continued to facilitate and support the WTO/TRIPS intellectual property agenda which is out of step with WIPO's role during the period immediately preceding the conclusion of the TRIPS Agreement.<sup>185</sup> WIPO's Achilles heel has been to retain the waning confidence of developing countries while mediating its promotion and development agenda in regard to intellectual property.<sup>186</sup>

Perhaps the most important demonstration of resistance to WTO/TRIPS' jurisdiction over intellectual property is the emergence of diverse fora at a global level, that provide alternative sites for regime shift in international intellectual property law-making.<sup>187</sup> Akin to the connection which the United States made between intellectual property and trade which resulted in the co-optation of the WTO into the intellectual property equation, many developing countries have made similar connections between intellectual property and other sites and subject-matters of their collective socio-economic interests.<sup>188</sup> Even though lacking politico-economic clout and the same deliberate scheming dedication the United States, Japan and the European Union deployed in bringing about TRIPS, developing countries and

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<sup>184</sup> See May, *supra* note 139.

<sup>185</sup> See *id.*; see also Oguamanam, *supra* note 138.

<sup>186</sup> May, *supra* note 139, at 91.

<sup>187</sup> See note 138 and accompanying text.

<sup>188</sup> In addition to vocal promotion of indigenous knowledge at many international fora, including the Convention on Biological Diversity ("CBD") and the United Nations Educational, Scientific, and Cultural Organization ("UNESCO") and within the United Nations framework, in 2007, developing countries pushed WIPO into adopting forty-five recommendations set out by the Provisional Committee on Proposals Related to a WIPO Development Agenda ("PCDA"). Formalization of WIPO's development agenda is owed to the 2004 joint initiative of Brazil and Argentina. See May, *supra* note 139 at 440-41. The agenda seeks to temper WIPO's promotion of intellectual property with the developmental objectives of the United Nations, of which WIPO has been a specialized agency since 1974. The impression in the developing countries is that WIPO's pursuit of a promotional objective, at the expense of a developmental imperative, panders to the trade-centered focus of intellectual property. Such an imbalance serves the interests of the United States-led industrialized countries, especially following the WTO-TRIPS regime coming into force. For further elaboration of the development agenda, see World Intellectual Property Organization, *The 45 Adopted Recommendations under the WIPO Development Agenda* (June 15, 2007), available at <http://www.wipo.int/ip-development/en/agenda/recommendations.html>.

indigenous peoples have now found the United Nations<sup>189</sup> processes, the Convention on Biological Diversity (“CBD”), the WIPO, (particularly through its Intergovernmental Committee on Intellectual Property, Traditional Knowledge and Folklore), (“UNESCO”),<sup>190</sup> (“FAO”), and even the WTO as fora for canvassing their vision of a new intellectual property order.<sup>191</sup>

In these fora, developing countries and indigenous peoples have made a connection between intellectual property and diverse intersecting issues, including the protection of their indigenous knowledge and intangible cultural heritage, their need for access to essential medicines and health care, the protection of their biological diversity and aspects of their bio-cultural and agricultural knowledge, their economic empowerment, and their human dignity, freedom, creativity, identity and epistemic worldview.<sup>192</sup> The lesson of this

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<sup>189</sup> The recent most symbolic outcome of this is the crystallization of the over two-century old struggle of indigenous peoples when the UN General Assembly formally adopted the 2007 United Nations Declaration on the Rights of Indigenous Peoples, on September 13, 2007. Declaration on the Rights of Indigenous Peoples, G.A. Res. 61/295, U.N. Doc A/61/L.67 (Sept. 7, 2007), *available at* [http://www.un.org/esa/socdev/unpfii/documents/DRIPS\\_en.pdf](http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf). This Declaration was adopted by a majority of 144 states in favor, four votes against (Australia, Canada, New Zealand and the United States) and eleven abstentions (Azerbaijan, Bangladesh, Bhutan, Burundi, Colombia, Georgia, Kenya, Nigeria, Russian Federation, Samoa and Ukraine). The United Nations Declaration on the Rights of Indigenous Peoples Information Page, <http://www.un.org/esa/socdev/unpfii/en/drip.html> (last visited Sept. 13, 2007).

<sup>190</sup> UNESCO is a specialized organ of the United Nations charged with inter alia “promoting collaboration among the nations through education, science and culture.” See CONST. UNESCO (adopted in London on Nov. 16, 1945 as amended). It has been the focal organ for diverse treaties on cultural rights and protection of intangible cultural heritage and folklore. See also *Convention for the Safeguarding of the Intangible Cultural Heritage 2003*, 12 INT’L J. OF CULTURAL PROP. 447, 447-58 (2005) (U.K.); *Convention on the Protection and Promotion of the Diversity of Cultural Expressions*, 13 INT’L J. OF CULTURAL PROP. 377, 377-91(2006) (U.K.).

<sup>191</sup> Developing countries do not, however, completely abandon the WTO. For the most part, for example, they are open and amenable to taking advantage of the TRIPS provisions on geographical indications as a potential window of opportunity for the protection and commercialization of their geographic-sensitive products. In 1999, India enacted a law on geographical indications, the Geographical Indications of Goods (Registration and Protection Act). Geographical Indications of Goods (Registration And Protections) Act, No. 48 (1999). See Sunder, *supra* note 98, at 298; see also Irene Calboli, *Expanding the Protections of Geographical Indications of Origin Under TRIPS: Old Debate of New Opportunity*, 10 MARQ. INTELL. PROP. L. REV. 181 (2006); *Patents and Traditional Medicine*, *supra* note 93; S.K. Saom, *Analysis of Prospective Geographical Indications in India*, 8 J. OF WORLD INTELL. PROP. 679 (2005).

<sup>192</sup> See BATTISTE & HENDERSON, *supra* note 90; MGBEOJI, *supra* note 9; INTERNATIONAL LAW AND INDIGENOUS KNOWLEDGE, *supra* note 83.

serendipitous counter-hegemonic international intellectual property regime-shopping is obvious. It demonstrates that the trade-centered vision of intellectual property which has imposed a universal standard of intellectual property protection suffers a legitimate deficit for not taking into consideration the peculiar needs of developing countries and indigenous peoples.<sup>193</sup>

### PART III: COLLUSIONS

#### INTELLECTUAL PROPERTY DYNAMICS IN THE GKE

The critical perspectives on intellectual property theory offered in Part I, and the outline of intellectual property's multifaceted issue-linkages and connection with the GKE in Part II, provide the basis for articulating the dynamics of intellectual property in the GKE going forward. Understanding the intellectual property dynamics in the GKE is important for future theory, law, and policy making around intellectual property.

Moving forward, we have noted that there is no unified theory of intellectual property. Some theoretical perspectives are more relevant to specific intellectual property regimes than others. For example, the "contractarian" approach is more suited to patents, and, less obvious to copyrights than other regimes of intellectual property. Consistent with the fading influence of natural rights thinking, the non-absolute nature of intellectual property rights is more palpable than ever before, given the litany of public regarding exemptions to intellectual "propertarian" absolutism. Ironically, however, as intellectual property extends to non-conventional arenas, which forecloses pre-existing exceptions, it becomes imperative to accommodate newer exceptions for diverse policy reasons.

Policy and theorizing around intellectual property must now contend with the basis on which to include and exclude new subject matter in regard to intellectual property protection. Intellectual property's capacity to grasp the new challenges posed by innovations in digital technology is part of its key dynamic. Digitization stretches theory and policy deliberations on intellectual property, perhaps more than only a few other (if any) technologies in history. For example, because of digitization, originality and creativity are issues for sophisticated disputes in copyright jurisprudence. With such practices as cyber-squatting and emergent rights regimes like domain names, the same is true regarding trademark. Even more challenging is the

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<sup>193</sup> See Oguamanam, *supra* note 183, at 285; see also Oguamanam, *supra* note 141, at 137.

theoretical basis for limiting or extending the scope of intellectual property rights in the virtual world. Can a patent holder or trademark owner sue for patent infringement in Second Life –the 3D virtual world? Digitization is instrumental to the upsurge of new technologies, business methods, the blurring of national and jurisdictional boundaries, and the liberalization of the creative enterprise. Each step of the way, traditional intellectual property notions are challenged as never before.

As categories of intellectual property rights remain open-ended, so is the potential for the evolution of justifications for intellectual property, especially for new and emergent regimes. Of notable interest is the subject of indigenous knowledge. The indigenous knowledge question implicates a gamut of issues, including the extension of patents to genetic resources. Since biological diversity and genetic resources is the heart of indigenous knowledge, intellectual property has stirred complex ethical and value-based questions over the “proPERTIZATION” of nature and culture.<sup>194</sup> Similarly, in the GKE, intellectual property now foists an important conceptual debate between capitalist and communal or democratized approaches to innovation.

Such a debate would not have been a major theoretical concern for the future of intellectual property, given the latter’s origins and evolutions in the Western capitalist and free market economy traditions. However, as an aspect of globalization, the new knowledge economic order is regulated by a harmonized intellectual property or knowledge protection legal framework. Despite their philosophical and ideological worldviews, indigenous and ancient civilizations now constituted into Westphalian nations states in developing countries are forced to play by the rules of the Western intellectual property tradition. The harmonization of the global intellectual property regime occurred at a time of major shift in innovation in the life sciences. Plant and animal genetic resources in indigenous and local communities across the globe are important resources for the life sciences industry. Indigenous bio-cultural knowledge and insights are critical in the advancement of life sciences and biotechnology in our increasingly cosmopolitan epistemic environment.

However, despite the contributions of indigenous and local communities to the global basket of knowledge, the new global intellectual property order exhibits palpable contempt for local

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<sup>194</sup> See Michael F. Brown, *Can Culture be Copyrighted?*, 139 CURRENT ANTHROPOLOGY 193, 199 (1998); Chidi Oguamanam, *Local Knowledge as Trapped Knowledge: Intellectual Property, Culture, Power and Politics*, 11 J. WORLD INTELL. PROP. 29, 43 (2008). See generally Patel, *supra* note 83.

knowledge. As already noted, without any mention or recognition of local knowledge innovation, it is easy to argue that the TRIPS Agreement disempowers local knowledge. Intellectual property has been associated with the escalation of the development divide between technology and information-rich industrialized countries and their technology-poor, but knowledge and biodiversity-rich, counterparts in the developing world. Intellectual property issue linkages in those countries have been less than flattering. A few examples of the litany of issues in the current problems of intellectual property in the developing world include access to essential drugs, food insecurity, exploitation of folklore, music, dance and other forms of expressive culture,<sup>195</sup> and the unidirectional transfer of wealth from wealthy countries to impoverished ones. The cumulative outcome of this frustration with intellectual property is symbolized by biopiracy. The elaboration of biopiracy as a concept, a practice and a phenomenon is perhaps one of the key dynamics that has shaped and will continue to define the global intellectual property order in future just as it has done over the past three decades.

The biopiracy debate tasks the global intellectual property order in the knowledge economy to ensure fairness and equity. It also helps galvanize and focus resistance to the WTO's institutional supremacy in relation to global intellectual property law-making. The paradigmatic shift from the WIPO to the WTO as the most authoritative regulatory body on intellectual property via the TRIPS Agreement is catalytic of North-South tension on intellectual property. Pressure groups have coalesced, solidarity has been forged, and alliances have been built amongst developing countries, indigenous and local communities and their sympathizers world-wide to re-think the TRIPS Agreement,<sup>196</sup> albeit, with little success thus far.

Perhaps more important, this form of resistance has made a meaningful impact as they translate into creative regime-shopping, regime-shifting, or counter-regime approaches to intellectual property outside the WTO/TRIPS arena.<sup>197</sup> Developing countries have resorted to venting their dissatisfaction with the present intellectual property order by exploring and sometimes exploiting other relevant international, institutional, or treaty outlets sympathetic to their cause.<sup>198</sup> In terms of significance, resistance to TRIPS and the exploration of regime alternatives means that the institutional

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<sup>195</sup> See Olufunmilayo B. Arewa, *TRIPS and Traditional Knowledge: Local Communities, Local Knowledge, and Global Intellectual Property Frameworks*, 10 MARQ. INTELL. PROP. L. REV. 155, 176 (2006).

<sup>196</sup> INTERNATIONAL LAW AND INDIGENOUS KNOWLEDGE, *supra* note 83, at 6-12.

<sup>197</sup> See sources cited *supra* note 138 and accompanying text.

<sup>198</sup> *Id.*

governance framework for global intellectual property is, and will continue to be, an aspect of the key dynamics of the intellectual property system.

The trade, market economic and intellectual property promotion ideology of the WTO/TRIPS framework would, as a matter of deliberate theoretical interest, be weighed alongside the developmental agenda and the vision of intellectual property championed by developing countries. Already that debate has begun to unravel at WIPO and WTO/TRIPS. Ultimately, however, theorization and policy debates on intellectual property may have to engage with rights proliferation in the intellectual property arena. While some are expressing concern over rights glut, others are pressing for the creation of a new intellectual property rights regimes.<sup>199</sup>

In the special case of life forms, theory and policy are already entangled with the desirability of intellectual property expansion to the realm of life. The appropriate parameter for this, as well as the basis for circumscribing such extension, would be issues for dedicated theoretical exploration. Theoretical perspectives on these will assist the courts to better wrestle with conflicting interpretations of statutory provisions that have characterized the issue of granting intellectual property protection on life forms.<sup>200</sup>

Another area in need of theoretical exploration and illumination is the subject of term extensions in intellectual property. The aggressive but subtle optimization and elongation of intellectual property term chips away from the “contractarian” analysis of intellectual property. For example, the premises for regulatory data protection, copyright term extension, and patent ever-greening rest mainly on industry practice or legislative fiat. A theoretical elaboration of the term elongation trend, especially in the context of the contractarian narrative of intellectual property, will be helpful in grappling with the inter-industry tension and the policy dilemma the vogue poses.

Intellectual property theoretical and policy dynamics in the knowledge economy must come to terms with the fluid and sophisticated sites of proliferation of creativity and innovation. As its anticipated outcome, this kind of introspection will help focus attention on alternative reward and incentive mechanisms outside intellectual property’s core. Not all forms of innovation are well suited for intellectual property protection. As we have seen, the extension of intellectual property to genes and platform technologies

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<sup>199</sup> See Heald, *supra* note 3, at 519.

<sup>200</sup> See Bagley, *supra* note 24, at 470.

or to basic research circumscribes, rather than promotes innovation. Awards, prizes, special contracts, or creative open source schemes and other forms of incentives<sup>201</sup> can be deployed in a dedicated and organic way to support the delivery of the promises of intellectual property, and to serve the public regarding objectives. That way, the intellectual property system will become more focused on relevant and more applicable innovations. Other reward or compensatory mechanisms for creativity are not necessarily in conflict with intellectual property. When they are applied to appropriate arenas of creativity and innovation, the overarching objectives of the intellectual property and public-regarding considerations, and an appropriate balance between private and public stakes in innovation, could be better served.

Related to the foregoing, a plural or more flexible approach to rewarding or recognizing creativity and innovation has other benefits. It would plug the loopholes and obviate the credibility deficit in the underlying presumptions of the reward and incentive narrative outlined in Part I(c). As we have seen, without the intellectual property-driven reward and incentive arrangement, the tide of creativity would continue to flow rather than ebb. Also, a pluralistic perspective will accommodate those other motivations of geniuses that have nothing to do with intellectual property and its promises. Thus, intellectual property would assume a more modest and balanced role as a single theoretical framework, among several others, underlying the creative and innovative enterprise.

Overall, in one sentence, the GKE poses complex policy and theoretical challenges to the extant intellectual property system. As monumental as those challenges appear, they are hardly strange to the dynamic and open-ended nature of intellectual property, and to theorizing about it. Historically, these issues have remained continual subjects of intellectual curiosity. A robust theoretical exploration of intellectual property *vis a vis* the features of the extant GKE will assist in realizing balanced and informed judicial and policy responses to current intellectual property challenges at national and international arenas.

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<sup>201</sup> Recently, charitable impulses are playing major intervention roles in promoting the distributive effects of the benefits of innovation. So far, this appears limited to funding support. See Oriola, *supra* note 68, at 67-70. As such initiatives expand, inventors and creators at individual or group levels may be inclined to lend their genius to the public regarding innovative objectives.