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# Examining Legal Avenues for Innovation Incentivization: A Focus on Creators of AI Software and Creative Machines

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**ABSTRACT**
Artificial Intelligence (AI), encompassing analogous technologies such as Machine Learning (ML), Deep Learning (DL), and Robotics, represents a profound capacity for machines to execute tasks traditionally requiring human intellect, fundamentally transforming modern societal sectors. The continued advancement of these creative machines demands substantial and consistent capital investment for research and development (R&D) to maintain competitive and technological superiority. This article explores the commercial and creative potential of AI and creative machines while addressing the critical challenges faced by their creators, specifically the massive upfront investment and restrictive regulatory barriers. It critically evaluates three primary legal and policy tools available for incentivizing innovation: strengthened tax incentives (specifically R&D tax credits), the appropriate application and scope of patent rights, and the establishment of flexible regulatory pathways. The analysis demonstrates that a supportive legal framework is essential to reward and sustain the efforts of AI innovators. Evidence suggests that policy tools like R&D tax incentives are highly effective, offering significant non-dilutive financing for startups. By strategically leveraging these mechanisms, the legal framework can substantially reduce innovation costs and risks, thereby driving the technological acceleration forecasted to increase Global GDP by up to 14% by 2030. The article concludes by advocating for the proactive strengthening of these policy instruments to secure predictable macroeconomic returns alongside sustained technological progress.
**Keywords:** Artificial Intelligence (AI), Innovation Incentivization, Creative Machines, Machine Learning (ML), Deep Learning (DL), Tax Incentives, Patent Rights, Regulatory Policy, R&D Tax Credits, Economic Growth.
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## INTRODUCTION

Artificial Intelligence (AI) refers to a machine's capacity to carry out operations that ordinarily require human intellect.[1] Other creative machines and creative technologies that are analogous to the AI technology in the modern world include Deep Learning (DL), Machine Learning (ML), and Robotics, which holistically describes the use of algorithms to give machines the ability to learn from a massive volume of data and also to get better over time in recognition, understanding, and decision-making.[2]

This article examines the creative sectoral potential and daily use of Artificial Intelligence, Machine Learning, and Deep Learning. Furthermore, it highlights the extent of investment capital required by creators of AI and other creative machines to continue research and development and maintain a competitive edge in AI technological advancement. Finally, the article critically evaluates avenues for innovation incentivization for creators of AI software and other creative machines.

## ARTIFICIAL INTELLIGENCE AND OTHER CREATIVE MECHANISMS

AI and other creative technologies, such as ML and DL, have become important in the modern world because of their ability to act autonomously in performing complex tasks that were once thought to be impossible.

[1] CM Soori, B Arezoo and R Dastres, 'Artificial Intelligence, Machine Learning and Deep Learning in advanced robotics, a review' (2023) 3 Cognitive Robotics 54-70.
[2] S Fahle, C Prinz, and B Kuhlenkotter, 'A systematic review on Machine Learning (ML) methods for manufacturing process identifying Artificial Intelligence (AI) methods for field application' (2020) 93 Procedia CIRP 413-418; D Vrontis, M Christofi, V Pereira, S Tarba, A Makrides and E Trichina, 'Artificial Intelligence, robotics, advanced technologies and human resource management: a systematic review' (2022) 33 International Journal of Human Resource Management 1237-1266.

 

Some of these complex tasks include: Object Detection and Recognition;[1] Predictive Maintenance which allows for the detection of potential issue before they occur and allow AI machines to predict when a system may fail, therefore allowing for proactive problem solving;[2] Gesture and speech recognition which allows AI and other creative technologies to recognize and respond to human gestures and speech, making them useful in a variety of contexts such as customer service and healthcare;[3] Medical Applications through which AI robots, equipped with advanced algorithms assist human surgeons during complex procedures, replacing the risk of complication and improving outcomes with greater precision and accuracy.[4] AI and other creative technologies are also useful in analyzing medical images due to their ability to recognize patterns and features that are not easily identifiable by humans.[5] Other complex use of AI include Military Engagement through AI enabled robots for use in reconnaissance, surveillance bomb disposal and other military operations;[6] Agric-Tech through AI robots that can autonomously navigate and manage crops, increasing efficiency, reducing labor costs and also optimizing farming operations such as prediction of weather patterns and monitoring of crop health;[7] Service Robotics which allows for the development of AI robots that provide services to humans such as cleaning, food delivery and customer services with special understanding of their preferences.[8] AI-powered robotics are also being used to automate tasks in manufacturing plants, such as assembly line tasks, painting, welding, and improving the accuracy of movement of inventories.[9] Finally, AI has also aided Autonomous Driving through algorithms that allow the machines to detect and recognize objects on the road, adapt to new road conditions, predict traffic, detect obstacles through sensors, and make navigation decisions through the utilization of GPS [10]

In view of the innovative potential and impact of AI and other creative technologies across various industrial sectors, as well as the daily lives of people, there is little wonder that this field is emerging as an important sector for capital investment. However, while these advanced machines offer many benefits, creators often face challenges. The first challenge typically faced by creators of AI and other creative technologies, such as robotics and ML, is one of capital/funding intensity[11]. Creators of AI require large amounts of high-quality data to train AI and ML algorithms. These data and training, which involve data collection, labeling, and annotation, are very expensive and require huge capital investment.[12] The training of AI is also time-consuming and requires human resources with professional expertise to sift through volumes of biased and noisy data, which can affect the accuracy and reliability of AI models.[13] This demand is acutely intensified by the development of Large Language Models (LLMs), which are pre-trained on massive, petabyte-scale datasets of text and code to acquire their generalist capabilities. This is also capital-intensive, especially in robotics, where it can be difficult to

[1] Q Bai, S Li, J Yang, Q Sing, Z Li and X Zhang, 'Object detection recognition and robot grasping based on machine learning: a survey' (2020) 8 IEEE Access 855-879.
[2] WJ Lee, H Wu, H Kim, MB Jun and JW Sutherland, 'Predictive maintenance of machine tool systems using artificial intelligence techniques applied to machine condition data' (2019) 80 Procedia CIRP 506-511
[3] X Jiang, S.C Satapathy, L Yang, SH Wang and YD Zhang, 'A survey on artificial intelligence in Chinese sign language recognition' (2020) 45 Arabian Journal of Science Engineering 9859-9894.
[4] S Panesar, Y Cagle, D Chander, J Morey, J Fernandez-Miranda and M Kilot, 'Artificial Intelligence and the future of surgical robotics' (2019) 270 Annals of Surgery 223-226.
[5] T Le Nguyen and TTH Do, 'Artificial Intelligence in health care, a new technology benefit for both patients and doctors', in: 2019 International Conference on Management of Engineering and Technology (2019) *IEEE* 1-15.
[6] S Wasilow and JB Thorpe, 'Artificial Intelligence, robotics ethics and the military: A Canadian perspective' (2019) 40 AI Magazine 37-48.
[7] MT Linaza, J Posada, J Bund, P Eisert, M Quartulli, J Dollner, A Pagani, IG Olaizola, A Barriguinha and T Moysiadis, 'Data driven artificial intelligence applications for sustainable precision agriculture' (2021) 11 Agronomy 1227.
[8] R Belk, 'Ethical issues in Service Robot and artificial intelligence' (2021) 41 Service Industries Journal 181860-181876.
[9] Fahle, Prinz and Ruhlenkotter (n2).
[10] BB Elallid, N Benamar, AS Hafid, T Rachidi and N Mrani, 'A comprehensive survey on the application of deep and reinforcement learning approaches in autonomous driving' (2022) 34(9) Journal of King Saud University - Computer and Information Sciences, 7366-7390.
[11] Soori, Arezoo and Dastries (n1) 58
[12] AI Karoly, P Galambos, J Kuti and LJ Rudas, 'Deep Learning in robotics: survey on model structures and training strategies' (2020) 51 IEEE Transactions on Systems, Man and Cybernetics 266-279.
[13] SK Baduge, S Thilakarathna, JS Perera, M Arashpour, P Sharafi, B Teodosio, A Shringi and P Mendis, 'Artificial Intelligence and Smart Vision for building and construction 4.0: machine and deep learning methods and application' (2002) 141 Automation in construction 104440.

 

obtain the requisite professional expertise required to maintain real-time processing of robotic applications.[1] Furthermore, in order to develop AI to analyze massive volumes of data, build models, and make predictions in real time, creators of AI need a lot of processing power. This is also quite expensive since AI, robots, and other creative machines will be constrained by energy and computing power limitations if the powerful and specialized energy hardware required to meet the energy intensity necessary for AI development is not available.[2] Thus, there is a need to create a landscape where creators of AI and other creative machines have certain guarantees, assurances, and incentives that the huge investment capital directed towards AI development will be rewarded.

Accordingly, creators of AI and ML technologies, as well as Robotic applications, often require robots and other creative machines to operate in dynamic and changing environments, which need adaptability in operations.[3] Since AI, ML, and robot models are designed to adapt to handle and adapt to unpredictable and complex situations, and learn from experience, there is a need to constantly test them in a wide range of simulated live environments from which iterations can be developed to ensure efficiency. This can be challenging because of the ethical concerns and regulatory restrictions that may arise from the data collection and usage, as well as potential hazards, accidents, and harm that these machines may cause during the various stages of iteration.[4] There is thus the need to balance ethical concerns and regulatory oversight with innovation so that creators of AI and other creative machines are not demotivated by unduly restrictive policies.

## LEGAL AVENUES FOR INNOVATION INCENTIVIZATION OF AI AND OTHER CREATIVE MACHINES

To encourage AI innovation by addressing the funding challenges of AI Research and Development and overly restrictive regulatory policies, this part explores three legal avenues, namely: Tax Incentives, Patent Rights, and Flexible Regulatory Pathways.

### Tax Incentives

A study has argued that there is a growing innovation funding crisis in the United States, evidenced by a decline in government funding for research and development used to encourage innovation.[5] For example, in the 1960s, the government shouldered 70% of funding for research. This amount was cut back to 61% in 2004 and further down to 50% in 2013.[6] By 2015, the percentage of government spending on research and development had dropped to 44%.[7] This direct funding decline undoubtedly impacts the ability of creators of AI technologies to continue to innovate. To support and consolidate the direct public funding shortfall, a critical public policy tool that the government designed through Section 41 and 174 of the Internal Revenue Code to incentivize private investment in R&D was an upfront tax incentive, implemented as a tax deduction or tax credit for qualified R&D spending. Thus, the R&D tax credit or tax deduction operates as an ex ante policy tool and generally covers all costs incidental to the development or improvement of a product, pilot model, formula, invention, or technique.[8]

It has been argued in theory that these tax incentives lower the cost of R&D for creators, increase the after tax profits on successful R&D and incentivizes private investors to spend more on R&D.[9] Indeed, there is some data and economic research on the tax credit's effectiveness in increasing research spending by private business which form the bulk of investors in the development of AI technologies.[10] There are many reasons why R&D tax credits may encourage increased spending for R&D in AI development. First, tax credits are easy to get, unlike

[1] Soori, Arezoo and Dastries (n1) 58
[2] AK Tyagi and P Chahal, 'Artificial Intelligence and Machine Learning', In Techniques, Methods and Applications (2022) *IGI Global* 421-446.
[3] J Arents and M Greitans, 'Smart industrial robot control trends, challenges and opportunities within manufacturing' (2022) 12 Applied Science 937.
[4] A Kapeller, H Felzmann, E Fosch-Vilaronga and AM Hughes, 'A taxonomy of ethical, legal and social implications of wearable robots: an expert perspectives' (2020) 26 Science and Engineering Ethics 3229 - 3247
[5] X Nguyen and JA Mainer, 'Attacking Innovation' (2019) 99 Boston University Law Review 1687.
[6] X Nguyen and JA Mainer, 'Incentivizing Innovation' (2022) 75 UW Law Digital Commons 351.
[7] Ibid.
[8] E Geranios, 'Treatment of Capitalized IRC 174 Research and Experimentation Expenditures During a Transaction' *GHJ* (5 September 2023) <https://www.ghjadvisors.com/ghj-insights/treatment-of-capitalized-irc-section-174-research-and-experimentation-expenditures-during-a-transaction> accessed 15th July 2025.
[9] Nguyen and Mainer (n21).
[10] G Guenther, *Research Tax Credit: Current law and policy issues for the 114th Congress* (Library of congress, Congressional Research Service, 20165).

 

government grants that require rigorous grant applications, bureaucracy, and long timelines before awards.[1] Secondly, because tax returns are not publicly available, R&D tax incentives are largely invisible, which might be an important protection for some creators of AI and other creative machines who do not want to be seen as profiting from an innovation with high job replacement potential. Finally, R&D tax incentives can be designed to benefit both small and large businesses engaged in the development of AI by encouraging them to work in a sector where government funding is unreliable and private investors are sometimes reluctant because there is no assurance that they will obtain a return on capital investments.[2]

However, there have been arguments against Research and Development tax credits because they are believed to reward spending that would have occurred without tax breaks anyway.[3] The central arguments of economists like Hansen who adopt this argument rest on the premise that the greatest challenge to Innovators getting returns on investment is market failure, which takes the form of underproduction or under-performance of the product due to the innovator's inability to capture all the benefits of their innovative product.[4] Thus, it is a market failure of an innovative product that prevents investors from getting a return on capital investments, and all the R&D tax credits in the world will not prevent the loss of investment return if the innovative product suffers endemic market failure.[5]

The arguments of economists like Hansen against tax credits are unfair and commercially unrealistic for creators of AI. This is because the argument is focused on the aftermath of innovation rather than the long, complex, and costly process of R&D that leads to such innovation, especially in cases like the development of AI technologies and other creative machines that require continuous iterations before they begin to enjoy market success of such a nature as to generate net revenue. For example, a recent comparative analysis found that four giant companies, Meta, Alphabet, Microsoft, and Amazon, have spent an average of over $40billion, $30billion, $20billion, and $10billion, respectively, every quarter on the development of AI.[6] These heavy costs reflect not only initial capital expenses on the development of AI technology but also the capital and operational expenses required for continuous improvements of these creative machines through iterations. Rather than dispense with R&D tax credits as argued by Hansen, the realities of the heavy funding required by creators of AI technologies call for the expansion of R&D tax credits from a purely ex ante policy tool for incentivizing AI innovations to an ex post policy tool for incentivizing AI innovations. What this means is that a one-size-fits-all ex ante tax credit that applies to other R&D expenditures might be inadequate for R&D in AI and other creative technologies in which innovation is a consistent cycle. Thus, a combination of an ex ante (front-end) and ex post (back-end) tax incentives across the innovation cycle from initial R&D into AI, as well as subsequent iterations, may serve as a more efficient policy tool in incentivizing creators of AI technologies and other creative machines. Succinctly explained, public policy must allow for tax incentives across the cycle of AI innovation to consolidate private investment in AI R&D.

**Patent Rights**

Intellectual Property regimes, particularly patent law, have always been accepted to play a pivotal role as a policy tool in driving technological advancement.[7] The jurisprudence advocating for patent protections rests on the premise that while innovations involve generating proprietary knowledge, such knowledge, when integrated into new products or technologies, sometimes results in market failures.[8] Thus, proprietary knowledge alone is not a sufficient incentive for innovation without a legal regime to protect the commercialization of such

[1] S Naseer, 'Public spending, quality of bureaucracy and economic growth: A theoretical analysis' (2019) 58(2) Pakistan Institute of Development Economics, Islambad 203-221

[2] KL Warfield and MJ Aman, *'Role of Small Biotechnology Companies in fledgling Bio-defense vaccine industry* (Taylor & Francis, April 11, 2016).

[3] D Hasen, 'Taxation and Innovation - A Sectorial Approach' (2017) University of Illinois Law Review 1043.

[4] B Russo, 'Innovation and the Long-Run Elasticity of Taxable Income' (2009) 75 Southern Economic Journal 798-800.

[5] N Noked, 'Integrated Tax Policy Approach to Designing Research and Development Tax Benefits' (2014) 34 Virginia Tax Review, 114-115.

[6] N Ratner and T Dotan, 'The AI Spending Spree, in Charts' The Wall Street Journal (11 September 2004) <https://www.wsj.com/tech/ai/artificial-intelligence-investing-charts-7b8e1a97> accessed 16th July 2025.

[7] A Dechezlepretre, 'Fast-tracking Green Patent Applications: An Empirical Analysis' (2013) ICTSD Programme on Innovation, Technology and Intellectual Property Issue Paper No.37 Geneva, Switzerland: International Centre for Trade and Sustainable Development 1-17.

[8] PM Romer, 'Endogenous Technical Change' (1990) 44(5) Journal of Political Economy 71-102.

 

knowledge.[1] The reason for this is that knowledge possesses a non-excludable trait such that once produced, others cannot be prevented from imitating and benefiting from such imitation.[2] Patent protection thus rests on the fact that the presence of perfect market competition impedes innovators from recovering innovation costs such as investment capital.[3]The creation of Patent rights and protection is therefore a public intervention to incentivize innovation by granting innovators, such as creators of AI Technologies, an exclusive right to utilize and sell their inventions commercially.

While studies indeed show that Patent protections catalyze both sectoral growth and commercialization of new technologies, there has been a push for reforming Patent rights in two major aspects.[4] The first is the huge cost required to register and secure a patent, and the second is the excessive taxation of patent royalties.[5] Unless addressed, these heavy costs can create inefficiencies that defeat the purpose of patent rights as an incentivizing policy tool for ensuring that innovators, such as AI creators, reap the commercial benefits of their innovations.

With respect to the huge cost required to register a patent, a simple solution is to simplify the patent process, especially for the benefit of small firms engaged in the development of AI and other creative machines. The reform could include streamlined procedures for patent filing, reduced administrative requirements, and cost exemption or reduction for designated sectors such as AI, ML, and Robotics.

In respect of the excessive taxation of patent royalties, three policy reform options are suggested for the purpose of strengthening patent rights and incentivizing creators of AI technologies and other creative machines.

*(i) Exempt AI Patent Royalties from Taxation*

The ultimate tax incentive for creators of AI technologies will be a total exemption from taxation of income (royalties) derived from a patent.

As a general rule, corporations in the United States are taxed on all of their income broadly defined to include patent royalties under Section 61(a) of the Internal Revenue Code, and also the US Supreme Court in *Commissioner v. Glenshaw Glass*.[6] Nevertheless, the United States Congress has historically and for various policy and strategic reasons excluded certain income from the tax base for the purpose of achieving a particular goal. A very striking example of tax exemption is Section 1202 of the IRC, which provides taxpayers other than corporations a 100% exclusion for gains with respect to the stock of qualified small business corporations. The tax incentive was aimed at encouraging investment in certain small businesses. Other tax exemption examples for businesses include non-taxability of interest on state and local bonds under Section 103 of the IRC; non-taxability of income of discharge of indebtedness under Section 108 of the IRC, non-taxability of improvements by lessees on corporate property under Section 109 of the IRC and contributions to the capital of corporations under Section 118 of the IRC for the purpose of encouraging certain economic behaviour. A similar exemption for the taxation of AI patent royalty could be carved for specified income, such as royalties from licensing of a patent or gains from the sale of a patent. Such an exemption will incentivize capital investments for creators of AI technologies and other creative machines.

*(ii) Lower the Tax Rate on AI Patent Royalties*

While total exemption may be difficult, another option for incentivizing creators of AI technologies may be to reduce the tax rate on AI patent royalties. This is not a new concept, as many countries have adopted such an approach, now popularly known as “patent boxes” or “innovation boxes”.[7] The United Kingdom’s patent box regime became effective in 2013, vide the UK Finance Act of 2012; Italy introduced its own patent box regime in 2015; Belgium reduced its tax rate on patent royalties by 80%, and Luxembourg, Spain, and Hungary all

[1] KJ Arrow, ‘Economic welfare and the allocation of resources for invention’ In, E.R. Rowley (eds) *Readings in Industrial Economics* (London, UK: Palgraves 1962).
[2] D Encaoua, D Guellec and C Martinez, ‘Patent system for encouraging innovation: Lessons from economic analysis’ (2006) 35 (9) Research Policy 1423-1440.
[3] M Uddin, ‘Patent as a tool for facilitating innovation: lessons for green technology’ (2023) Centre for International Governance and Innovation Digital Policy Hub - Working Paper 1-17.
[4] J Hudson and A Minea, ‘Innovation, Intellectual Property rights, and economic development: a unified empiricial investigation’ (2013) 46 World Development, 66-78.
[5] KN Princewill, *Appraisal of Importance of Patent in Innovation and Technology* (Alex-Ekueme Federal University of Law LL.B Projects, 2024).
[6] 348 U.S. 426, 431 (1995).
[7] CM Paolella, A Tempestini and F Bortolameazzi, *The Upcoming Implementation of the Italian Patent Box Regime* (McDermott Will & Emory, 2015).

 

reduced theirs by 50%.[1] These countries typically lower the rate by either exempting a certain percentage from qualifying patents, which has the effect of reducing the tax rate on that patent, or by allowing the income from the qualifying patent to be taxed at a reduced rate. The United States has yet to follow this global trend as a policy tool to incentivize innovation, but there have been congressional proposals for the same.[2]

*(iii) Tax Holiday or Moratorium on AI Patent Royalties*

A third policy option for reforming patent protection and incentivizing creators of AI and other creative machines is the allowance of tax holidays or a moratorium on patent royalties for AI technologies and other creative machines. Rather than an absolute exemption, a tax holiday will exempt the taxation of patent royalties of AI technologies for a designated period of time, while a tax moratorium will defer the payment of the tax till a later time. The advantage of this third option is a reduction of the AI creator's tax liabilities, which leaves the AI creator with the use of the money (which will otherwise have been used to pay tax) for a longer while.[3] Of course, the period of holiday or moratorium will have to be clearly defined. Nevertheless, such a limited period is enough to act as a relief for qualified creators of AI technologies.

The reforming and strengthening of patent rights for creators of AI technologies and other creative machines, if properly implemented, will serve as a powerful incentive for innovators in such sectors.

**Flexible Regulatory Pathways**

AI, ML, and robotics have emerged as transformative forces across sectors and industries.[4] Over the past few years, new business models centered on AI-driven technologies have emerged across critical sectors of the economy. The evolution of these creative machines has created regulatory headaches. While there has been a proliferation of legislation across the continent, there remain theoretical disagreements on the most adequate way to capture the entire scope of maximizing the benefits of AI while mitigating potential harms, privacy concerns, and ethical considerations that lawmakers continue to grapple with across the globe.[5] Two main theories, the Public Interest Theory and Private Interest Theory, have emerged for the effective regulation of AI, ML, and other creative machines.

*(i) Public Interest Theory for AI Regulation*

The public interest theory advocates a subnational command-and-control theory for the regulation of AI technologies based on the premise that strict government intervention is required to maintain public security and prevent market failures, such as loss of jobs that may be occasioned by AI technologies and other creative machines.[6] In this regard, the initial reaction of policymakers to the rise of AI and other creative machines was one of regulatory reluctance because of the sentiment that new business models should benefit from the application of less stringent rules.[7] However, as both big and small businesses operated in the ensuing legal vacuum and as the power and influence of AI and other creative machines grew, the push as begun to grow for the need of stringent governmental regulation to address privacy concerns, protect against the harms and hazards of AI and address ethical considerations through some form of legal rules backed with civil and if need be, criminal sanctions.[8]

The major challenge of the Public Interest theory of regulation is that it not only stifles innovation but is also impractical. First, it is hard to see how existing legislation can always be in advance of innovations such as AI and other creative machines since innovation typically implies something new, which will always be outside the parameters of existing law. Secondly, the operational data and algorithms required by policy makers to make

[1] X Nguyen and J.A Mainer (n21) 381.
[2] RM Kysare, 'Critiquing (and Repairing) the New International Tax Regime' (2018) 128 Yale Law Journal 339.
[3] JA Miller and JA Maine, The Fundamentals of Federal Taxation: problems and materials(Carolina Academic Press, 5th Edition, 2018) 209.
[4] L Pantanowitz, M Hanna, J Pantanowitz, J Lennerz, WH Henricks, P Shen, B Quinn, S Bennet, HH Rashidi, 'Regulatory Aspects of Artificial Intelligence and Machine Learning' (2024) 37 Modern Pathology 1-8.
[5] M Finck, 'Digital Regulation: Designing a Supranational Legal Framework for the Platform Economy' (2017) 15 LSE Law Society and Economy Working Papers 2.
[6] P Nooren, N van Gorp, N van Eijk and R.O Fathaigh, 'Should we regulate digital platforms? A New Framework for Evaluating Policy Options' (2018) Policy and Internet 264-296.
[7] C Cauffman and J Smits, 'The Sharing Economy and the Law. Food for European Lawyers' (2016) 23 Maastricht Journal of European and Comparative Law 903, 907.
[8] J Black, 'Decentering Regulation: Understanding the Role of Regulation and Self-Regulation in a "Post-Regulatory World' (2001) 54 Current Legal Problems 103, 105.

 

informed policy on the use and development of AI are in the hands of AI creators who, in most jurisdictions, can object to sharing it by hiding under trade secret protection.[1] Even where the operational data is obtained, the lack of understanding of proprietary technology and novel creative machines prevents regulatory authorities from making meaningful protection standards that will always be in advance of hazards and harmful concerns that may be occasioned by AI technologies and other creative machines.[2] In view of this, the central argument against a Public Interest theory of AI regulation is that it will only serve to frustrate and demotivate creators engaged in the development of AI technologies and other creative machines.

*(ii) Private Interest Theory for AI Regulation*

The essential argument of the Private Interest Theory of regulation for AI is that private creators of AI are entirely able and capable of governing themselves because they have more knowledge and better enforcement mechanisms for regulating their creative machines than public authorities.[3] Proponents of self-regulation by AI creators stress that, as a general matter, AI and other creative technologies are, by their very nature, a de facto self-regulating entity best exemplified by Lessig's maxim "code is law" that reflects the truth that coding, not law, ultimately determines what AI and other creative technologies can do.[4] Thus, the integration of privacy concern, ethical consideration, and safety measures into the originating design algorithm of the AI or other creative technology is the most effective governance framework for regulating creative technologies.[5] In this regard, a compelling argument for saddling creators with self-regulation is the notion that a powerful incentive for creators of AI to self-regulate their creative technologies is the mass social boycott and economic sabotage that will be self-inflicted if their technologies or machines violate privacy and ethical concerns or threaten public safety.

While the theory of self-regulation is attractive because it not only ensures that ethical consideration is integrated in the design framework of AI technologies but also ensures that public regulation does not stifle innovation, any reasonable person should rightly feel uneasy with a theory that purports to leave public safety and ethical welfare to the discretion of self-regulating for profit entities that act outside any oversight mechanism.[6] Isolated or unsupervised self-regulation fails to account for scenarios where the interest of an AI creator conflicts with public interest. Furthermore, the problem with mass social boycott and economic sabotage as an incentive for self-regulation by AI creators is that it is reactive rather than preventive in the sense that the public harm must have already occurred for the boycott or economic sabotage to happen. Consequently, while the public interest theory of regulation will indeed stifle innovation by AI creators, allowing the development and use of AI technologies to operate without any form of government supervision will be a mistake of epic proportions.[7]

*(iii) Mixed Theory of Regulation for Incentivizing AI Innovations*

As a result of the shortcomings of the public and private theory of regulating AI technologies and other creative machines, a new theoretical concept like shared governance and co-regulation has begun to gain attention as a potential third-way solution for regulating AI technologies whilst encouraging innovation.[8]

Co-regulation essentially strikes a balance of power between regulators and creators of AI technologies by allowing regulators to set the general rules and objectives for the regulation of the AI and creative machine sector, but leaving creators to oversee the operational dimension of the implementation of the regulatory rules and objectives subject to government oversight.[9] Co-regulation is appealing because it encompasses a flexible hybrid that safeguards public interest while encouraging innovation.[10] Co-regulation allows creators of AI who have far superior knowledge of the sector to provide the implementation framework of the regulatory objective

[1] G Malgieri, 'Trade Secrets v Personal Data: A Possible Solution for Balancing Rights' (2016) 6 International Data Privacy Law 102.
[2] F Pascquale The Black Box Society (Harvard University Press 2015).
[3] J Black, 'Constitutionalising Self-Regulation' (1996) 59 Modern Law Review 24, 27.
[4] Lawrence Lessig, Code and other laws of Cyberspace (Basic Books 1999).
[5] MC Gomito, 'Regulation.com. Self-Regulation and Contract Governance in the Platform Economy: A Research Agenda' (2017) 9 European Journal of Legal Studies 53.
[6] Finck (n45).
[7] R Epstein, 'Can Technological Innovation Survive Government Regulation?' (2013) 36 Harvard Journal of Law and Public Policy 87, 88.
[8] R Gorwa, 'Regulating them softly' in models for platform governance' (2019) Centre for International Governance Innovation 39-43.
[9] Flew, 'A platform on trial' (2018) 46(2) Intermedia 24-29.
[10] C Marsden, *Internet Co-regulation* (Cambridge University Press 2011).

 

set by regulators.[1] This allows for flexible polices with a continuous focus on stimulating mutual learning in real time for both sides. It also allows for ease of enforcement.

In the EU, co-regulation has been recognized as a mechanism whereby a legislative act entrusts the attainment of objectives defined by the legislative authority to non-public actors such as creators of AI technologies and other creative machines.[2] This recognition by the EU of co-regulation as a regulatory approach for encouraging innovation in AI R&D is most visible in the ongoing plan to fully enact the EU Artificial Intelligence Act, which will serve as the first comprehensive legal framework on the regulation of artificial intelligence.[3] The Act will ban AI applications in certain areas such as cognitive behavioral manipulation and social profiling.[4] The Act also imposes certain transparency requirements on creators of AI. Furthermore, the focus is heavily on encouraging AI innovation and Start-ups in Europe by requiring national authorities to provide creators of AI with a testing environment for AI that simulates conditions close to the real world.[5] Finally, the Act set up a working group to oversee the implementation and enforcement of the AI Act.

The United States can adopt the same co-regulation approach of the EU as an effective and flexible regulatory pathway for encouraging creators in the development of AI and other creative machines.

## CONCLUSION

This article highlighted the importance of Artificial Intelligence and other Creative machines across several sectors in the modern world. It also explored the capital investment and restrictive regulatory policy challenges faced by creators of AI and other creative machines. To address this challenge, the article explored three legal avenues for incentivizing AI innovation, namely: tax incentives, patent rights, and flexible regulatory pathways for creators of AI technologies.

Artificial Intelligence and other creative machines like robotics, machine learning, and deep learning have unlimited potential to transform our world. However, if creators of these innovations continue in the research and development of these creative machines, the legal framework must incentivize, support, and reward their efforts. In this regard, the strengthening of tax incentives, patent rights, and the creation of flexible regulatory pathways are a few effective policy tools for incentivizing creators of AI technologies and other creative machines.

The effectiveness of policy tools like R&D tax incentives is demonstrably high; they form a primary mechanism for driving AI innovation by mitigating the high barrier to entry. Studies indicate that these direct tax credits offer companies a significant financial return, often equaling 6% to 10% of their Qualified Research Expenses (QREs). This is not merely an accounting adjustment; it is a critical source of non-dilutive financing that allows smaller AI startups to realize savings of up to $500,000 per year against payroll taxes. Furthermore, economic analysis forecasts that the global implementation and acceleration of AI, only made possible by such supportive legal and fiscal policies, could result in an astonishing increase in Global GDP by up to 14% (equivalent to US$15.7 trillion) by 2030. By strategically leveraging tax incentives, patent protections, and regulatory flexibility, the legal framework can effectively reduce the upfront cost and risk of innovation, creating a self-sustaining cycle that secures not just technological advancement but also massive, predictable macroeconomic returns.

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