

The Journal of International Relations, Peace Studies, and Development

Volume 6
Issue 1 *The Journal of International Relations,
Peace Studies, and Development*

Article 4

2021

Environmental Compliance Through Regulation Technology

Philip Deatherage

Follow this and additional works at: <https://scholarworks.arcadia.edu/agsjournal>



Part of the [Environmental Law Commons](#)

Recommended Citation

Philip Deatherage (2021) "Environmental Compliance Through Regulation Technology," *The Journal of International Relations, Peace Studies, and Development*. Vol. 6: Iss. 1, Article 4.

Available at: <https://scholarworks.arcadia.edu/agsjournal/vol6/iss1/4>

This Article is brought to you for free and open access by ScholarWorks@Arcadia. It has been accepted for inclusion in The Journal of International Relations, Peace Studies, and Development by an authorized editor of ScholarWorks@Arcadia. For more information, please contact hessa@arcadia.edu, correllm@arcadia.edu.

ENVIRONMENTAL COMPLIANCE THROUGH REGULATION TECHNOLOGY

BY:

PHILIP DEATHERAGE

ABSTRACT

RegTech (short for Regulatory technology or regulation technology) simply put, is the use of technology to enhance compliance with regulations. As RegTech has developed, some have been quick to define RegTech as something for the financial sector, because it gained prominence with its use in the financial industry. It is true that RegTech gained prominence when it found success in the financial industry and became an important part of FinTech. However, RegTech is its own separate field within technology, which is simply the extrapolation of the ideas around automating compliance and providing insight, and can be applied to many different areas of compliance. Essentially, as long as you have regulations or rules, you can use regulation technology to streamline and ensure compliance. RegTech, or regulation/regulatory technology is simply using technology to apply the vast sets of rules and regulations that an area of law imposes, to company practices, creating checks and balances. RegTech can therefore be applied to many different areas of compliance with regulations.

This article explores RegTech as a stand-alone field, and then explores possibilities of how RegTech can intersect with regulatory compliance specifically for environmental regulation and compliance, applying RegTech to environmental compliance, permitting, within the United States Environmental Protection Agency (EPA). I am proposing that RegTech should be adopted, based on the requirement for agencies to use the Best Available Technology, including the EPA. Finally, I believe for this to be implemented, it must be a concerted effort between industry, the legislature, and agencies like the EPA. Organizations who educate congress on the importance of technology like this also play an important role.

INTRODUCTION

Ensuring compliance with regulations, which govern a company's activities, can be one of the most expensive parts of doing business.¹ However, non-compliance with regulations may be just as expensive, or it could cost more.² Compliance for companies is time-consuming.³ In many cases, compliance requires a staff, along with an outside consultant or an outside agency to ensure the company is not running afoul of regulations.

For small businesses, the cost of compliance can be too high, causing many small businesses to take the “wait and see” approach,⁴ or we see these businesses doing a cost-benefit-analysis to decide whether compliance is worth it. That is, comparing the cost of non-compliance with the cost of compliance, and then deciding whether it is worth the cost or not.⁵ But, the cost is not the only prohibitive factor when it comes to compliance. In many cases, a business may attempt to comply, but because the regulations are confusing or ambiguous, the company ends up not actually being compliant.

It is estimated that “around 200 regulatory revisions” are made daily just in the Financial FinTech sector, for example.⁶ As more regulations go into effect or regulations change, the burden (the time and cost associated with that time) grows for both the business and the agency enforcing the

¹ *General Electric Co. v. Litton Industries Automation Systems, Inc.*, 920 F.2d 1415 (8th Cir. 1990); *What is Corporate Compliance and Why it is Important*, PowerDMS, <https://www.powerdms.com/blog/what-corporate-compliance-is-why-compliance-is-important/> (last visited May 1, 2020).

² FRANK P. GRAD, *TREATISE ON ENVIRONMENTAL LAW*, § 2.03 (2018). (“This sanction is the non-compliance penalty measured in amount by money saved by the polluter by not installing expensive pollution control equipment. The purpose is to make non-compliance at least as costly as compliance.”); *Explore the frontier of the RegTech Universe*, Deloitte, <https://www2.deloitte.com/lu/en/pages/technology/articles/regtech-companies-compliance.html>, (“Regulatory fines exceeding US\$ 320 billion have been issued since 2008” for violations by financial related firms), (last visited May 1, 2020).

³ Piotr Kaminski, Daniel Mikkelsen, Thomas Poppensieker, and Kate Robu, *Sustainable compliance: Seven steps toward effectiveness and efficiency*, McKinsey & Company, <https://www.mckinsey.com/business-functions/risk/our-insights/sustainable-compliance-seven-steps-toward-effectiveness-and-efficiency>, (last visited May 1, 2020).

⁴ Lucy McNulty, *Compliance Costs to More Than Double by 2022*, Fin News, <https://www.fnlonon.com/articles/compliance-costs-to-more-than-double-by-2022-survey-finds-20170427>, (last visited May 1, 2020).

⁵ Matthew D. Zinn, *Policing Environmental Regulatory Enforcement: Cooperation, Capture, and Citizen Suits*, 21 STAN. ENVTL. L.J. 81, 128 (2002).

⁶ *Explore the frontier of the RegTech Universe*, Deloitte, <https://www2.deloitte.com/lu/en/pages/technology/articles/regtech-companies-compliance.html>, (last visited May 1, 2020).

regulations. Automation through regulatory technology or regulation technology (commonly referred to RegTech) can solve many of these issues for businesses.⁷

RegTech can also help agencies enforce the regulations, and help both the agencies and businesses streamline the process and remove ambiguity.⁸ This also gives the means for immediate and real-time transparency when appropriate and needed, making the impact positive for government, business and the public. As SEC Commissioner Michael Piwowar said, “[RegTech] covers the use of technology by regulators to fulfill their duties in a more thorough and efficient manner.”⁹ RegTech is a cost-effective way for businesses to be compliant while reducing the burden on governmental agencies, who oversee regulations.¹⁰ So, RegTech is one way in which to reduce the cost to businesses of implementing environmental regulations – in essence, reducing the weight of one of the arguments that industry may make against environmental regulation.

This article is composed of five parts. Part I explains the basics of RegTech along with its history, development, future use, and the benefits that RegTech can provide to businesses and governments. In this part, the article lightly explores the history of RegTech in the financial sector, but argues that RegTech should be recognized as its own field to be used by other industries as a potential solution to implementing regulations. Part II is a basic overview of what a regulation is as defined by the EPA, and then touches on the current model of regulatory compliance we use and looks at some of the downfalls to our current model. Part III looks at the requirements that agencies such as the Environmental Protection Agency (EPA) have for the use of best available technologies (BAT) and lays out the argument for why RegTech is the best available technology and lays out the application of RegTech to the permitting and compliance process of the EPA. In Part IV, the potential risks or cons of RegTech, and specifically related to RegTech for environmental regulations are discussed. Part V discusses the future of RegTech as a required solution for environmental compliance, and where we should go from here. Finally, Part VI concludes this article.

⁷ Matthew Hector, *Robots Invade Seyfarth*, 105 Ill. B.J. 19 (2017).

⁸ Julie DiMauro, *FINRA's RegTech report shows uses and challenges of new technology*, Reuters, <https://www.reuters.com/article/bc-finreg-RegTech-challenges/finras-RegTech-report-shows-uses-and-challenges-of-new-technology-idUSKCN1M72F8>, (last visited May 1, 2020); Melanie Waddell, *What is RegTech, Anyway?*, <https://www.thinkadvisor.com/2018/04/04/what-is-RegTech-anyway/>, (last visited May 1, 2020).

⁹ *Id.*

¹⁰ *Id.*; 37 NW. J. INT'L. L. & BUS. 382 (2016-2017).

I. REGULATORY TECHNOLOGY (REGTECH)

A. What Is Regulation Technology, Commonly Known As RegTech?

RegTech (short for Regulatory technology or regulation technology) simply put, is the use of technology to enhance compliance with regulations. Regulatory technology (commonly referred to as RegTech) is the use of computation to automate the process of regulation compliance, monitoring, permitting, and reporting.¹¹ As RegTech has developed, some have been quick to define RegTech as something for the financial sector, because it gained prominence with its use in the financial industry.¹² It is true that one of RegTech's early successes was in FinTech in the United States and the United Kingdom. The emergence of FinTech required a way to effectively ensure regulations were being followed.¹³ The Financial Conduct Authority (FCA) in the United Kingdom defines RegTech as: "a subset of FinTech that focuses on technologies that may facilitate the delivery of regulatory requirements more efficiently and effectively than existing capabilities".¹⁴ The Oxford Dictionary defines RegTech as, "Computer programs and other technology used to help banking and financial companies comply with government regulations."¹⁵ But, is this really the best definition for RegTech?

While it is true that RegTech gained prominence when it found success in the financial industry and became an important part of FinTech,¹⁶ it is neither a part of, nor confined to the financial industry. RegTech is its own separate field within technology, which is simply the extrapolation of the ideas around automating compliance and providing insight, and can be applied to many different areas of compliance. Essentially, as long as you have regulations or rules, you can use regulation technology to streamline and ensure compliance. RegTech, or regulation/regulatory technology is simply using technology to apply the vast sets of rules and regulations that an area of law imposes, to company practices, creating checks and balances. RegTech can therefore be applied to many different areas of compliance with regulations. This article proposes that the above definitions are very limited and do not reflect the current change in technology.

¹¹ Patrick Schueffel (2017). *The Concise Fintech Compendium*. Fribourg, Switzerland: School of Management Fribourg.

¹² Micha Bitterli, *Is RegTech "The next big thing"? - First Part*. Deloitte, <http://blogs.deloitte.ch/banking/2017/11/is-RegTech-the-next-big-thing-first-part.html>, (last visited May 1, 2020).

¹³ *Id.*

¹⁴ Financial Conduct Authority (FCA), (2016-02-23), *RegTech*, <https://www.fca.org.uk/firms/innovation/regtech>, (last visited May 1, 2020).

¹⁵ *RegTech*, Oxford Living Dictionary, <https://en.oxforddictionaries.com/definition/RegTech>, (last visited May 1, 2020).

¹⁶ FCA, *supra*, note 14.

One of the first references to such a technology that resembled RegTech, was in a speech by Andy Haldane, where he said:

I have a dream. It is futuristic but realistic. It involves a Star Trek chair and a bank of monitors. It would involve tracking the global flow of funds in close to real time (from a Star Trek chair using a bank of monitors), in much the same way as happens with global weather systems and global internet traffic. Its centerpiece would be a global map of financial flows, charting spill-overs and correlations.¹⁷

Harvard Kennedy School defines RegTech as the “application of new technology to regulation-related activities in order to shift them from analog-era to digital and computational models and, thereby, gain dramatic increases in effectiveness, efficiency and scalability”¹⁸

On a global scale, while first implemented in the FinTech sector, RegTech is a system that stands entirely on its own and does not depend on FinTech.¹⁹ RegTech emphasizes monitoring, compliance, and generation of regulation required monitoring and reporting, providing a scalable and sustainable solution with cost savings to business and government.²⁰

B. RegTech as Its Own Industry

RegTech is used to streamline risk management²¹, reduces the cost of compliance, is flexible, and provides room for new changes in the market.²² There are no functions of RegTech that are specific to, or that depend on the financial industry, rather the financial industry is simply one of the applications of RegTech. As Micha Bitterli pointed out, “the automation of regulation is the key element, and this is applicable to more industries than just financial services.”²³

¹⁷ Andy Haldane, Chief Economist, Bank of England, Speech at the Maxwell Fry Annual Global Finance Lecture: Managing Global Finance as a System, Birmingham University 10 (Oct. 29, 2014).

¹⁸ *Financier Worldwide Magazine, The future of RegTech: a skyrocketing industry?*, <https://www.financierworldwide.com/the-future-of-RegTech-a-skyrocketing-industry/>, (last visited May 1, 2020).

¹⁹ Bitterli, *supra*, note 12.

²⁰ Bitterli, *supra*, note 12.

²¹ Bitterli, *supra*, note 12.

²² *FinTech, RegTech and the Reconceptualization of Financial Regulation*. NW. J. OF INT’L. L. & BUS., Forthcoming.

²³ Bitterli, *supra*, note 12.

RegTech has moved past what some saw as its beginnings as the little brother of FinTech,²⁴ and is standing on its own. Certainly, as the field of RegTech continues to grow, and we see RegTech used to implement compliance in other industries, a definition that defines RegTech as a broader category of regulation compliance technologies which encompasses and FinTech, makes for the true definition of RegTech.

Since RegTech has become its own industry (as discussed above in this article),²⁵ RegTech has as an industry has skyrocketed.²⁶ The industry is expanding RegTech from simple if-then statements, to combining it with artificial intelligence, machine learning, and biometrics among other sub-fields as more industries demand solutions.²⁷ This demand has driven the tech industry to start to see RegTech as another field with great possibilities for application in most any industry, because every industry has regulations that must be followed.

C. Examples of RegTech in Practice

1. RegTech in the Financial Industry

The need for a technological system like RegTech has existed for some time. The lack of a system like RegTech to ensure compliance with regulations, was one of the reasons that some believe e-banking (online banking), failed when it was introduced in the late 1980s.²⁸ Online banking and other e-financial has come a long way since the 1980s and, eventually created the FinTech industry in the early 2000s.²⁹

In the United Kingdom, RegTech was seen as an answer to their complicated compliance problems within FinTech and the financial industry.³⁰ This use of RegTech in the financial industry quickly spread to the United States after the financial crises that started in 2008.³¹ However, the use of RegTech has continued to expand into other fields and industries such as employee surveillance,

²⁴ *RegTech is the new FinTech*, Deloitte, <https://www2.deloitte.com/ie/en/pages/financial-services/articles/RegTech-is-the-new-FinTech.html>, (last visited May 1, 2020).

²⁵ Bitterli, *supra*, note 12.

²⁶ Financier, *supra*, note 18.

²⁷ *Id.*

²⁸ Douglas W. Arner et al., *The Evolution of Fintech: A New Post-Crisis Paradigm?* 32–33 (UNIV. OF NEW S. WALES, Law Research Series, Working Paper No. 62, 2016), <https://ssrn.com/abstract=2676553> [<https://perma.cc/3NQH-N4HJ>].

²⁹ Schueffel, *supra*, note 11.

³⁰ *Id.*

³¹ *The Evolution of FinTech: A New Post-Crisis Paradigm*, 47 GEO. J. INT'L. L. 1271 (2015–2016).

electronic and physical storage compliance, and civil code enforcement.³² RegTech is automated workflow management using legal rules rather than business rules.

Though the United Kingdom and then the United States were the earliest countries to adopt RegTech, Asia, and specifically Singapore is beginning to lead the way in RegTech from risk management to “blockchain technology to change how companies are incorporated, administered, and even funded.”³³

One thing that Singapore has done with regtech is created the “MyInfo” initiative. This allows citizens to control and authorize third-party access to their data. This initiative expanded to allowing banks to use data to open accounts, and now “more than 20 financial institutions are now using MyInfo to provide more than 110 digital financial services.”³⁴

Much of this progress can be attributed to Ravi Menon, who is the Managing Director of the Monetary Authority of Singapore (a part of the Singapore Central Bank).³⁵ He has not only been supportive and involved in these initiatives but has spoken about his focus “focus on the developing the fintech ecosystem, half of which are closely related to regtech namely; Identity/KYC, data governance and platforms for innovation.”³⁶ Mr. Menon has gained the respect of both the government, tech startups, and financial institutions for his “disruptive” policies and encouraging regtech in Singapore, and how it has made compliance easier for both government and financial business.³⁷

In China, as access to phones and the internet have become the norm, and as their economy grows around this, regtech has played an important role and will continue to play a role in solutions implemented by leaders such as Tencent and Alibaba.³⁸

³² What is ‘RegTech’, Investopedia, <https://www.investopedia.com/terms/r/RegTech.asp>, (last visited May, 1, 2020).

³³ Sharifah Nursyafuqah, *Singapore leading the way in Asia’s RegTech wave*, Feb. 27, 2017, <https://www.techinasia.com/talk/singapore-lead-asias-RegTech-wave>, (last visited May 1, 2020).

³⁴ *Snapshot of Singapore’s Booming Regtech Scene*, <https://fintechnews.sg/25967/regtech/regtech-singapore/>, (last visited May 1, 2020).

³⁵ *Id.*

³⁶ *Id.*

³⁷ Yoolim Lee and Chanyaporn Chanjaroen, *Why Fintech Startups Love Singapore’s Hawk-Eyed Central Banker*, <https://www.bloomberg.com/news/articles/2018-10-25/fintechs-can-play-in-singapore-s-sandbox-just-don-t-cross-ravi-menon>, (last visited May 1, 2020).

³⁸ *Internet Access in China – Wi-Fi and Internet Censorship*, China Highlights, <https://www.chinahighlights.com/travelguide/article-internet-access-in-china.htm>, (last visited May 1, 2020); Tom Yan, *Will Regtech be the solution for China’s challenges?*, June 08, 2017, <https://www.kapronasia.com/china-banking-research-category/item/874-will-regtech-be-the-solution-for-china-s-challenges.html>, (last visited May 1, 2020).

2. RegTech for GDPR Compliance

Another example of RegTech being implemented outside of FinTech is for compliance with the new General Data Protection Regulation (GDPR).³⁹ The European Union has implemented GDPR across the European Union, and RegTech is becoming a central key to compliance and avoiding fines.⁴⁰ Because the GDPR applies to anyone and any company doing business with persons in the European Union, almost any company who does business online is liable.⁴¹ The General Data Protection Regulation directive 2016/679 from the European Union (GDPR),⁴² imposed, through agencies in each Member State, strict rules and regulations on companies regarding the handling of data and people's personal and private data.⁴³ This became, and continues to be a huge regulatory and administrative burden for not just large companies, but small businesses as well.⁴⁴

Pierre-Olivier Grenouiller from Legal IT Factory saw regulation technology as a solution to this burden of implementing the GDPR.⁴⁵ Two years ago, ID-Pal CEO James O'Toole saw the problem with implementing the GDPR, and saw the opportunity for using regtech to help clients implement the GDPR and stay in compliance. O'Toole said then, "GDPR is of critical importance to our solutions, given the sensitive nature of customer information that is being dealt with. Many businesses are still struggling to get a proper handle on their requirements and responsibilities arising from this far reaching regulation. This complexity creates a massive opportunity for RegTech firms

³⁹ *Data Protection 101*. Digital Guardian, <https://digitalguardian.com/blog/what-gdpr-general-data-protection-regulation-understanding-and-complying-gdpr-data-protection>, (The General Data Protection Regulation (GDPR), is a regulation put in force by the European Union that governs privacy and handling of data), (last visited May 1, 2020).

⁴⁰ *GDPR Report*, <https://gdpr.report/news/2018/04/13/why-RegTech-will-central-to-gdpr-success/>. (The report discusses how companies around the world are using RegTech to comply with the new European Union regulations known as GDPR), (last visited May 1, 2020).

⁴¹ Digital Guardian, *supra*, note 39; *GDPR compliance: how to tackle the issue beyond EU borders?*, <https://www.wavestone.com/en/insight/gdpr-issues-beyons-eu-borders/>, (last visited May 1, 2020).

⁴² Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), <https://eur-lex.europa.eu/eli/reg/2016/679/oj>. [Accessed May 1, 2020].

⁴³ *The GDPR: new opportunities, new obligations*, https://ec.europa.eu/info/sites/info/files/data-protection-factsheet-sme-obligations_en.pdf. [Accessed May 1, 2020].

⁴⁴ *Id*; *One year of GDPR: did the General Data Protection Regulation turn out to be a burden or an opportunity for companies?*, <https://siriuslegaladvocaten.be/en/one-year-of-gdpr-did-the-general-data-protection-regulation-turn-out-to-be-a-burden-or-an-opportunity-for-companies/>, (last visited May 1, 2020).

⁴⁵ *Through "Regtech" Solutions, GDPR will be the Future Technical and Operational Standard for Personal Data Processing*, <https://observatoire-fic.com/en/through-regtech-solutions-gdpr-will-be-the-future-technical-and-operational-standard-for-personal-data-processing-pierre-olivier-grenouiller-legal-it-factory/>, (last visited May 1, 2020).

such as ourselves to simplify the compliance process so that businesses can focus more attention on their core capabilities.”⁴⁶

3. RegTech for Compliance with Online Vape Sales

Another example of RegTech being used by companies other than large banks, is the use for e-commerce companies who sell vaping products, and who are required to comply with tobacco regulations in multiple jurisdictions.⁴⁷ In the United States, there are Federal regulations from the United States Food and Drug Administration (FDA), but then each State has put in place their own regulations.⁴⁸ Add to this the looming worry that the FDA may put in place more regulations,⁴⁹ companies have turned to new solutions based on RegTech that could ensure they would stay in compliance and in business.⁵⁰ RegTech provides these small companies with a solution that helps them comply with state regulations on tobacco sales by verifying the identity, the age, and ensures compliance with other regulations according to the regulations of the State the customer is buying from, and the State the customer is shipping to.⁵¹ This is all done in real-time while the customer is completing their checkout process with minimum annoyance or inconvenience to the customer.⁵² This has lowered the cost for these small businesses by eliminating the many hours needed for manually verifying customer identification documents, and checking State compliance.⁵³

⁴⁶ *Businesses Don't Have a Handle on GDPR Requirements, Says CEO*, <https://fintech.global/globalregtechsummit/businesses-dont-have-a-handle-on-gdpr-requirements-says-ceo/>, (last visited May 1, 2020).

⁴⁷ *RegTech And Vape Juice*, DWD Blog, <https://www.dwdonline.com/blog/RegTech-and-vape-juice.html>, (last visited May 1, 2020).

⁴⁸ *Id.*

⁴⁹ *FDA asks e-cigarette giants to help regulate themselves*, The Verge, Oct. 31, 2018, <https://www.theverge.com/2018/10/31/18047790/electronic-cigarettes-vaping-juul-myblu-vuse-logic-fda-crackdown>, (last visited May 1, 2020).

⁵⁰ DWD, *supra*, note 47.

⁵¹ DWD, *supra*, note 47.

⁵² DWD, *supra*, note 47. (The process is done via an API in the background while the customer is completing their purchase).

⁵³ DWD, *supra*, note 47.

D. Who Benefits From the Use of RegTech?

1. Companies: Big and Small

RegTech provides benefits to a number of players. Big banks and financial institutions were the first to start adopting it, but it is not limited to large companies anymore.⁵⁴ With the age of startups, RegTech is increasingly being implemented and expanded in new ways both inside and outside the FinTech industries.⁵⁵ Many of these companies doing so are startups and small-business. For example, startups use RegTech for identification verification, issuing licenses, and complying with funding regulations.⁵⁶ RegTech also allows business and government to collaborate and look ahead for problems that could arise, and identify these, coming up with solutions that will keep the company from becoming noncompliant. This is a benefit to both the industry and government.⁵⁷

2. Governments and Tax-Payers

Government agencies benefit from RegTech as well, because RegTech saves the government on the costs associated with the enforcement of regulation, and allows for real-time, continuous monitoring.⁵⁸ This saved cost also benefits the tax-payer.⁵⁹ Governments are realizing that embracing digital technology is allowing for the government to enforce and collect more penalties.⁶⁰ In FinTech, governments have seen higher compliance rates, and when companies fall outside of compliance, quicker action to return to a state of compliance.⁶¹

⁵⁴ *RegTech Universe*, Deloitte, <https://www2.deloitte.com/lu/en/pages/technology/articles/RegTech-companies-compliance.html>, (last visited May 1, 2020).

⁵⁵ Yan, *supra*, note 38.

⁵⁶ Yan, *supra*, note 38.

⁵⁷ *Id.*; 37 NW. J. INT'L. L. & BUS. 382 (2016-2017).

⁵⁸ *The regulator's new toolkit*, Deloitte, <https://www2.deloitte.com/insights/us/en/industry/public-sector/reducing-compliance-costs-with-RegTech.html>, (last visited May 1, 2020); 37 NW. J. INT'L. L. & BUS. 382 (2016-2017).

⁵⁹ *Id.*

⁶⁰ *New Excitement on Taxes: RegTech*, Digitalist Magazine, <https://www.digitalistmag.com/finance/2018/10/15/new-excitement-on-taxes-RegTech-06190347>, (last visited May 1, 2020).

⁶¹ Lucy McNulty, *Compliance Costs to More Than Double by 2022*, Fin News, <https://www.fnlonon.com/articles/compliance-costs-to-more-than-double-by-2022-survey-finds-20170427>, (last visited May 1, 2020).

3. Investor Confidence

Another benefit to RegTech in any industry is investor confidence.⁶² Investors are key for startups when they want to bring their product and idea to market.⁶³ But to get investors, investors want to know they will not have to contend with large fines or being shut down because of the company they are investing in violating regulations.⁶⁴

II. OVERVIEW OF REGULATION AND THE CURRENT MODULE OF REGULATION COMPLIANCE

A. *What is a Regulation?*

Regulations are rules made up by the regulating agency (in our case the EPA) that are mandatory requirements that individuals, businesses, and others must follow.⁶⁵ These regulations help organizations avoid risks to the environment and health of the public. Risk assessment is a process by which a future event that would have a negative impact is analyzed and a judgement is made on whether the risk is something that can be allowed or not, while considering relevant influencing factors.⁶⁶ The EPA uses risk management to decide the risks to the environment, health, and other possible risks when creating regulations.⁶⁷

B. *What is Regulatory Compliance?*

Regulatory compliance is the process that companies attempt to take steps to ensure they comply with relevant laws, and the relevant regulations and policies from agencies.⁶⁸ Even though RegTech has transformed the way in which FinTech companies comply with regulations and interact with regulators, RegTech has not been implemented or integrated with environmental regulations.⁶⁹ Currently, compliance with EPA regulations requires mountains of paperwork and confusing forms.

⁶² See generally, *RegTech Explained*, Loanlogics, <https://loanlogics.com/wp-RegTech.html>, (last visited May 1, 2020).

⁶³ Serenity Gibbons, *3 Things You Need For a Successful Startup*, Forbes, <https://www.forbes.com/sites/serenitygibbons/2018/05/31/3-things-you-need-for-a-successful-startup/>, (last visited May 1, 2020).

⁶⁴ *Id.*; Loanlogics, *supra*, note 62.

⁶⁵ *Laws and Regulations, Regulations*, EPA, <https://www.epa.gov/laws-regulations/regulations>, (last visited May 1, 2020).

⁶⁶ M. Rausand (2013), *Risk Assessment: Theory, Methods, and Applications*. John Wiley & Sons. pp. 1–28.

⁶⁷ *Risk Assessment*, EPA, <https://www.epa.gov/risk>, (last visited May 1, 2020).

⁶⁸ Tom C. W. Lin, *Compliance, Technology, and Modern Finance* (2016). 11 Brook. J. Corp. Fin. & Com. L. 159 (2016); TEMP. UNIV., Legal Studies Research Paper No. 2017-06.

⁶⁹ *Id.*

This article proposes that RegTech could eliminate the confusion and paperwork, while providing a higher level of compliance.

C. The EPA's Compliance Process is Outdated

For environmental legislation to be most successful, it not only needs to be clear to the agencies and industry, but agencies need to have an effective way in which to enforce it.⁷⁰ The EPA monitors compliance through inspections, investigations, paper record reviews and audits, and information requests.⁷¹ While this made sense in the past, when business depended on paper to operate, it is not the optimal solution in an age where business uses data. Using RegTech means that data can be analyzed in real-time and find or stop violations before they happen.

Currently, the EPA uses the application of a 'Rules of Deterrence' strategy with environmental regulation enforcement in most cases.⁷² This type of enforcement strategy, however, creates a system of rules that are rigid and uniform, and apply to a broad range of circumstances. The problem with this approach, is that it requires a "ruthless and efficient investigation and enforcement capability."⁷³ With this, the EPA traditionally focuses on compliance through monitoring, so that it can identify violations. It attempts to collect evidence through its monitoring and use that for targeted enforcement.⁷⁴ The EPA currently relies on a very adversarial system, always ready to resort to litigation (in contrast to many European agencies), because it assumes that "once violations are detected then some form of enforcement action may be appropriate 'because, in any society, many people will not comply with the law unless there are clear consequences for non-compliance.'"⁷⁵

The EPA's focus on monitoring is not bad, it is just very inefficient. Using this system, the EPA is acting after the fact, rather than before. The EPA is going after the criminal, rather than preventing the crime. The EPA's mission is to protect the environment. So, the EPA should be acting to prevent noncompliance and possible harm to the environment – not simply prosecuting. This is why this article argues for using RegTech to enhance collaboration, reporting, and prevention.

⁷⁰ Neil Gunningham, *Enforcing Environmental Regulation*, 23:2 J. of Env'tl. L., Oxford U. Press. 170-171. (2011).

⁷¹ *How We Monitor Compliance*, EPA, <https://www.epa.gov/compliance/how-we-monitor-compliance>, (last visited May 1, 2020).

⁷² Gunningham, *supra*, note 70.

⁷³ MK Sparrow, *Imposing Duties: Government's Changing Approach to Compliance*, Praeger Publishers, ix, (1994).

⁷⁴ Gunningham, *supra*, note 70.

⁷⁵ *Id*; *Principles of Environmental Enforcement*, Office of Enforcement, (US EPA 1992), 7.1.

III. REGTECH FOR ENVIRONMENTAL PERMITTING

A. An Overview

As mentioned in previous sections of this article, Companies are applying RegTech to regulations that these companies have to comply with, in multiple fields, and where both business and governmental agencies need to track compliance and reporting. RegTech can be best described as “technology to facilitate compliance with regulations... on the industry side, but also technology to facilitate oversight and enforcement on the government's side. So, industry players can think of [RegTech as] a double-sided market” when implemented properly.⁷⁶ Properly implemented, the EPA could use RegTech for oversight and enforcement of the regulations.⁷⁷ On the side of the businesses being regulated, RegTech can be used to ensure compliance and reporting. This article proposes that RegTech would be the “Best Available Technology Economically Achievable” required by current law and regulations administered by the EPA.⁷⁸

B. Best Available Technology (BAT)

Under current law and regulation,⁷⁹ the EPA uses is required to use the “best available technology economically achievable”⁸⁰ (BAT) “as determined in accordance with regulations issued by the Administrator.”⁸¹ So, once the Administrator of the EPA creates environmental regulations, part of their responsibility in implementing these regulations is to require the application of not just the best available technology, but also that it is “economically achievable.”⁸² The term “Best Available Technology” is used in both the Clean Water Act (CWA),⁸³ while the Clean Air Act uses the term

⁷⁶ Juan Llanos, *Blockchain Regulation Technology Explained with Juan Llanos, FinTech and RegTech Lead at ConsenSys*. YouTube (2018), https://www.youtube.com/watch?v=rL7H_PQZ0CI (last visited May 1, 2020).

⁷⁷ *Id.*

⁷⁸ 33 U.S.C. § 1311(b)(2)(A).

⁷⁹ 33 U.S.C. § 1311(b)(2)(A).

⁸⁰ (EPA identifies the best available technology that is economically achievable for that industry and sets regulatory requirements based on the performance of that technology. The Effluent Guidelines do not require facilities to install the particular technology identified by EPA; however, the regulations do require facilities to achieve the regulatory standards which were developed based on a particular model technology), <https://www.epa.gov/eg/learn-about-effluent-guidelines>, (last visited May 1, 2020).

⁸¹ 33 U.S.C. § 1311(b)(2)(A).

⁸² 33 U.S.C. § 1311(b)(2)(A).

⁸³ 33 U.S.C. § 1311(b)(2)(A).

“Best Available Control Technology.”⁸⁴ While the CWA authorizes the EPA to set effluent guidelines (which are discharge regulations), the Act requires the EPA to base these guidelines on BAT.⁸⁵ This article proposes that while RegTech was not an available technology at the time of this law passing, it is not only the best available technology now, but it is also the best available technology economically achievable. There are a number of ways in which RegTech is the Best Available Technology, including creating regulations, facilitating compliance by those required to comply with regulations, collaboration between industry and government, the cost or what is “economically achievable,” and the time and burden of regulation implementation.⁸⁶

1. Creating Regulations

In the formulation of the regulations, regulators are seeking to create a solution to a problem, for example a new type of pollution. Regulators can use data that has been collected using RegTech, and look at this real-time data to help them identify the potential problem and solutions before implementing regulations based on a data driven solution. Second, RegTech can automate reporting while resting the gatekeeping function with the regulation industry. This reporting would facilitate reporting data and changes in both directions. Data from companies on their compliance and also other relevant data that would help the EPA in formulating and modifying current rules. On the other side, this data would allow the EPA to modify a company’s permit requirements based on actual data from the company’s facilities, rather than a one-size-fits-all approach to permitting. This data can also be used to help the EPA track the effectiveness of specific regulations, so that the EPA can make adjustments on new permits and regulations, and work cooperatively with companies to meet expected goals in a transparent way. This, along with the provided predictability to those being regulated, are benefits that encourage companies to comply with reporting the data. This approach of using the data reported by the regulated companies to modify current regulations and shape future regulations has proven effective within RegTech in the FinTech industry.⁸⁷

⁸⁴ 42 U.S.C. § 7401-7515.

⁸⁵ 33 U.S.C. § 1311(b)(2)(A); *Effluent Guidelines*, EPA, <https://www.epa.gov/eg/learn-about-effluent-guidelines>, (last visited May 1, 2020).

⁸⁶ 33 U.S.C. § 1311(b)(2)(A).

⁸⁷ *The regulator’s new toolkit, Technologies and tactics for tomorrow’s regulator*, Deloitte, <https://www2.deloitte.com/insights/us/en/industry/public-sector/reducing-compliance-costs-with-RegTech.html>, (last visited May 1, 2020).

2. Facilitate Compliance

RegTech will facilitate the compliance process on both sides, with both the creation and implementation of environmental regulations. The EPA can, through the use of voluntary or mandatory reporting of data, ensure that the company stays in compliance with regulations. On the other side, an EPA regulated company, can ensure that it meets and complies with all environmental regulations that apply to it. Because the use of RegTech automatically collects and uses data, if companies are not in compliance, or they fall out of compliance, the data needed to prove that the company is out of compliance is already available. RegTech could make it easier for the EPA to enforce the regulations as it gives companies an incentive to stay in compliance, because the data which they are reporting can establish their compliance or not. The data could allow the forecasting of future compliance concerns due to shifts in industry output or climate. This sort of prediction would serve the company well, as it seeks ways to remain in compliance. As has been the case with RegTech in the financial industry,⁸⁸ RegTech makes it faster to investigate when a company is out of compliance, because the data needed is already available.

3. Collaboration and Transparency

RegTech will allow for collaborative efforts⁸⁹ between industry players, the government agencies, the companies the EPA is regulating, and academia, by allowing them to share data. This collaboration and data can contribute to better compliance and better regulations that achieve the goals of the EPA while reducing the burden on the companies. However, this collaboration can also provide data to third parties allowing them to propose new solutions. While this may sound counterintuitive for the regulated bodies and the regulator to collaborate on regulations and compliance of those regulations, this is not a new idea. This collaboration effort is already working well within another sector – the financial industry.

RegTech has caused collaboration in the FinTech and financial industry, between financial firms, academia, and regulators, and has become the norm within the financial industry where

⁸⁸ Daniel Gutierrez, *Big Data for Finance – Security and Regulatory Compliance Considerations*, *INSIDE BIG DATA*, <http://insidebigdata.com/2014/10/20/big-data-finance-security-regulatory-complianceconsiderations/>, (last visited May 1, 2020).

⁸⁹ U.S. Sec. and Exchange Com., <https://www.sec.gov/news/speech/piwowar-old-fields-new-corn-innovation-technology-law>, (Commissioner Michael S. Piwowar speaks about how RegTech has allowed collaboration between regulators and government), (last visited May 1, 2020).

RegTech was first implemented.⁹⁰ This collaboration has made it easier to regulate on governments' sides, and easier to implement regulations on the financial firms' sides.⁹¹ In turn, this has driven down the cost for financial institutions. As United States Security and Exchange Commission (SEC) Commissioner Michael Piowar said, "Most importantly [RegTech] covers collaboration between private and public actors to take advantage of existing technologies to make everyone's lives easier."⁹²

But collaboration through RegTech can also lead to more transparency. An example of this collaboration is with the SEC's Electronic Data Gathering Analysis and Retrieval system (EDGAR), which is used by financial institutions for filings. In turn, this system makes all public filings "truly accessible to the whole internet-wired world," which "greatly enhanced and democratized the power" for the SEC's emphasis on a regulatory system that is disclosure based.

4. Cost or "Economically Achievable"

Fourth, is the issue of "economically achievable" which, by law, the EPA must consider when creating regulations.⁹³ In other words, cost, and not just for the EPA to enforce the regulations, but the cost for the company that has to comply with implement the regulations. There are three significant costs involved here for companies, but RegTech is a cost-effective way for businesses to be compliant while reducing the burden on governmental agencies, in this case, the EPA.⁹⁴

First, the cost of implementation, monitoring, and reporting. This cost of implementation includes many factors. For example, the cost of training and salary for the staff who evaluate, interpret, and implement the regulations into the company policies and procedures. However, as RegTech is implemented for EPA compliance, these costs would go down as third party companies begin to develop software solutions that can be used by any company, rather than companies simply developing their own software. Also, there is the cost of outside experts, whether technical or legal, and the cost of training and implementing at the employee level. Again, this cost would go down with the implementation of third-party industry standard RegTech software.

⁹⁰ Douglas W. Arner, *The Emergence of RegTech 2.0: From Know Your Customer to Know Your Data*, 44 J OF FIN. TRANSFORMATION, (2016) at 15.

⁹¹ *Id.* at 15.

⁹² U.S. Sec. and Exchange Com., <https://www.sec.gov/news/speech/piowar-old-fields-new-corn-innovation-technology-law>, (Remarks at the 2018 RegTech Data Summit - Old Fields, New Corn: Innovation in Technology and Law).

⁹³ 33 U.S.C. § 1311(b)(2)(A).

⁹⁴ *Id.*

Secondly, there is cost that results from the implementation of the regulations. This could include having to use different materials, new techniques, cost of disposal rising from different requirements, or other changes that require the use of some more expensive technology.

Thirdly, the cost of getting it wrong. This goes to bias as discussed later in this article. However, this risk becomes smaller too, when the third-party RegTech software becomes readily available because the company developing the software can have experts on staff.

The cost that RegTech would reduce would be the first and the last – the cost of implementation, monitoring, and reporting, and the cost of getting it wrong – reducing the chance of involuntary noncompliance, and if the use of RegTech in the financial sector is any indication, reduce noncompliance in general.⁹⁵ The regulatory cost to business continues to be one of the biggest concerns. In a survey by RegTech firm Deloitte, they found that the biggest concern of businesses was “burdensome regulations,” only passed by the risk of recession.⁹⁶ With the cost of compliance expected to “more than double by 2022,”⁹⁷ the burden is growing. RegTech meets and exceeds the standards of “best available technology economically available” that is required.⁹⁸ It presents the opportunity to reduce costs over current reporting systems, and hopefully better control pollution.

5. Time and Burden of Regulation Implementation

When considering BAT, the EPA should consider the time it takes to implement new regulations and the impact that those regulations could have on both the environment and the regulated companies. In the financial sector, an estimated “around 200 regulatory revisions” are made daily.⁹⁹ RegTech, through data and collaboration, has enabled both the regulators and the companies being regulated to respond quickly to changes brought on by understanding the data or changing markets.¹⁰⁰ In comparison, by adopting this same collaborative approach as regulators in the Financial industry, the EPA could implement regulations based on current data.

⁹⁵ Deloitte, “Deloitte CFO Signals™ survey,” press release, October 3, 2016, <https://www2.deloitte.com/us/en/pages/about-deloitte/articles/press-releases/tenor-worldwide-geopolitics-creating-concerns.html>, (last visited May 1, 2020).

⁹⁶ *Id.*

⁹⁷ Lucy McNulty, *Compliance Costs to More Than Double by 2022*, Fin News, <https://www.fnlonon.com/articles/compliance-costs-to-more-than-double-by-2022-survey-finds-20170427>, (last visited May 1, 2020).

⁹⁸ 3 U.S.C. § 1311(b)(2)(A).

⁹⁹ *Explore the frontier of the RegTech Universe*, <https://www2.deloitte.com/lu/en/pages/technology/articles/RegTech-companies-compliance.html>, (last visited May 1, 2020).

¹⁰⁰ *Id.*

IV. RISKS, PROBLEMS, AND POTENTIAL CONS OF REGTECH

A. An Overview

This article proposes RegTech as a solution to many of the issues brought by implementing regulations, and that RegTech should be considered the “best available technology,” by the EPA when implementing environmental regulations. However, while RegTech provides many great benefits,¹⁰¹ it would be remiss if I did not address the risks and problems that exist from the implementation of RegTech and automated technology in any field. However, this article proposes that the EPA, third-party developers, and the regulated companies can overcome these potential problems if these parties understand the potential problems and collaborate to take proper action to put safeguard in place.

Some of the possible risks with RegTech include, creator bias, bias from the mathematical equations, algorithmic bias, bias from artificial intelligence, mistakes, and possible challenges to due process.

B. Potential Creator Bias

The first potential problem faced by the implementation of RegTech is bias.¹⁰² This bias is not bias against a company or person, but rather, a personal bias of the implementer. For example, the person coding may read the law in a particular way based on their misunderstanding, and so the system will have his or her bias built in, which can affect the effectiveness of the system. Most of this bias would come from the divide that separates the regulation-maker, those who ensure compliance at companies, and the tech side (developers/coders). The ones creating the processes in the system are doing so with their unknown or known biases which are affecting the way in which they see the rules, and how they should apply. In other words, RegTech inherits the bias, or in many cases the misconceptions of the ones implementing the technology. This is called the “technology judgement rule.”

¹⁰¹ *RegTech: What is it and What Are the Benefits?* Accenture, <https://bankingblog.accenture.com/RegTech-what-is-it-what-are-benefits>, (last visited May 1, 2020).

¹⁰² Letitia Bolton, *KYC and RegTech: innovating to region control*, <https://jwg-it.eu/kyc-and-RegTech-innovating-to-regain-control>, (last visited May 1, 2020).

The technology judgement rule¹⁰³ comes into play when those who are imputing the rules or regulations are biased by their own programmed reasoning or their false or altered interpretation of the law they are implementing through RegTech.¹⁰⁴ There is a way to overcome these biases and false reasoning to be able to avoid this pitfall. This can be accomplished through training developers and other key individuals to know their limits and to collaborate as a team. This can also be helped with better mathematical equations and algorithms as discussed below. Companies who are implementing these regulations and technologies can also benefit from the new lawyers who are both lawyers and coders.¹⁰⁵ Those implementing the regulations should not just be coders, but also fully understand the concept of the laws which they are coding and the impacts it could have on others.¹⁰⁶ This is also where one of the possibilities of bias enters, with humans coding and having either conscious or unconscious bias, and that affecting how they code, the data they use, and ultimately the outcome of decisions.

Collaboration and understanding between the regulators, the compliance experts, and the coders can also help to overcome this bias.¹⁰⁷ Part of this collaboration includes sharing data, and reforming the process based on data collected. In other words, it is not enough for each party to know their part, but rather they must be able to understand and collaborate with other actors. The coders building the RegTech implementations need to be coders who understand the concepts of the regulations that go into the coding.¹⁰⁸ This article proposes that legal experts who at least have some programming and coding skills are essential in this process.

C. Bias in Mathematical Equations, Algorithms, and Artificial Intelligence

Another potential bias that is certainly to affect any implementation of technology is mathematical or algorithmic bias in artificial intelligence. Much has been written about the social, and financial, and justice implications of using algorithms, and how they can be biased – whether it be

¹⁰³ Nizan Geslevich Packin, *RegTech, Compliance and Technology Judgment Rule*, 93 CHI.-KENT L. REV. 193, 212 (2018).

¹⁰⁴ *Id.*

¹⁰⁵ Frank Pasquale & Glyn Cashwell, *Four Futures of Legal Automation*, 63 UCLA L. REV. Discourse 26 (2015).

¹⁰⁶ *Id.*

¹⁰⁷ Bolton, *supra*, note 102.

¹⁰⁸ Frank Pasquale & Glyn Cashwell, *supra*, note 105.

because the algorithms are written incorrectly, or because the data used to train the systems is flawed or biased from the beginning.

Cathy O’Neil, in her Book *Weapons of Math Destruction*, discusses how big data and algorithms have impacted people based on their race, gender, where they grew up, or other factors which the data subjects cannot control, leading to a reinforcement of stereotypes and amplifying inequality.¹⁰⁹ She says that this can lead to what she calls a creation of a “toxic cocktail for democracy.”¹¹⁰

Though mathematicians, analysts, and those in computer science have been talking about this for years, governments are just now starting to wake up to this realization, and the impact on society. Or, perhaps it’s just becoming a big enough issue for governments to start caring. It is interesting to look at the approach in the European Union to this matter, and while not perfect, certainly it begins to address the issue and gives legal recourse to those who have been wronged.¹¹¹

Article 8(2) of the European Union Charter of Fundamental Human Rights (EUCFR), states that “Such data must be processed fairly for specified purposes and on the basis of the consent of the person concerned or some other legitimate basis laid down by law. Everyone has the right of access to data which has been collected concerning him or her, and the right to have it rectified.”¹¹² The most important part here is the phrase, “processed fairly.”

Additionally, the GDPR,¹¹³ states that, “In order to ensure fair and transparent processing in respect of the data subject, taking into account the specific circumstances and context in which the personal data are processed, the controller should use appropriate mathematical or statistical procedures for the profiling, implement technical and organisational measures appropriate to ensure, in particular, that factors which result in inaccuracies in personal data are corrected and the risk of errors is minimised, secure personal data in a manner that takes account of the potential risks involved for the interests and rights of the data subject and that prevents, inter alia, discriminatory effects on natural persons on the basis of racial or ethnic origin, political opinion, religion or beliefs, trade union membership, genetic or health status or sexual orientation, or that result in measures having such an

¹⁰⁹ O’Neil, Cathy, *Weapons of Math Destruction*, Crown Books, 2016.

¹¹⁰ *Id.*

¹¹¹ EU Charter of Fundamental Human Rights, Article 8(2) – Protection of Personal Data.

¹¹² *Id.*

¹¹³ *General Data Protection Regulation*, European Union, Directive 2016/679 71.

effect. Automated decision-making and profiling based on special categories of personal data should be allowed only under specific conditions.”¹¹⁴

There are three important takeaways from the GDPR. First that companies and governments are to “ensure fair and transparent processing in respect of the data.”¹¹⁵ Secondly, that the data controller (company, government) should “use appropriate mathematical or statistical procedures for the profiling, implement technical and organisational measures appropriate to ensure, in particular, that factors which result in inaccuracies in personal data are corrected and the risk of errors is minimised.”¹¹⁶ Third, that they use mathematical equations that don’t have “discriminatory effects on natural persons on the basis of racial or ethnic origin, political opinion, religion or beliefs, trade union membership, genetic or health status or sexual orientation, or that result in measures having such an effect.”¹¹⁷ In other words, companies and governments are required to ensure that proper mathematical equations and computational equations are used when processing data electronically. So this applies to the use of RegTech when processing data.

Vassilis Christophides argues that we have a legal obligation to prevent bias via human input and AI.¹¹⁸ According to Christophides,

Machine Learning (ML) algorithms typically operate by learning patterns in available data and generalizing them to unseen data. There is growing recognition that even ML models developed with the best of intentions may exhibit discriminatory biases, perpetuate inequality, or perform less well for historically disadvantaged groups. Harms to particular individuals or groups are essentially caused by “biased data” a notion that encompasses many forms of “bugs” specific to data-driven decision systems.

Christophides argues that based on statistics and causal analytics approaches we can find discriminatory practices that come into play in applications like criminal justice and sentencing guidelines, predictive policing, credit-worthiness, and other areas that have heavy impacts on people’s

¹¹⁴ *Id.*

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ Vassilis Christophides. Professor of Computer Science at the University of Crete. (In a lecture entitled, *Data Ethics in Algorithmic Decision Making*, at ETIS Laboratory, CY Paris University. Cergy, France. February 27, 2020).

lives. Ethical ML balancing between fairness and accuracy of predictions is what is important.¹¹⁹ Christophides has come up with a mathematical model and equation that seeks to balance the protected group with unprotected groups, and looks at the data based on benefits granted and denied, and in so doing, looks to see how accurate or bias the data is, allowing for developers to correct the application of the data, and the learning of the system.

D. Can We Control RegTech?

It must also be mentioned that consumers and industry leaders alike do have concerns about the implications of RegTech as it moves closer to artificial intelligence.¹²⁰ Leaders such as Elon Musk who constantly push the limits, have expressed concern with *what if* – situations where artificial intelligence goes too far.¹²¹ This article proposes however, that even though RegTech is seeing more integration of artificial intelligence, the doomsday moments are far from being possible.¹²² This article does not discount that it is prudent to have checks on technology, both legal and ethical. But those checks need to be carefully considered.

E. Mistakes

Like with bias, mistakes can affect the effectiveness of the system. If a coder improperly implements a particular regulation, it could have the opposite effect of the regulation. For example, if the regulation says something “should not,” but someone enters it as “should,” this can change the outcome of reporting and compliance. The proposal for this is much like above. Collaboration around the development process, proper testing, interactive review, and a team that both understands coding and law. Another part of the solution for this would be to pass legislation to require collaboration between the companies developing the software and the EPA, to ensure it meets the requirements. In turn, the law could require that if something were mistakenly left out, those affected would not be liable, so long as they reported the issue when identified, and the procedure and timing laid out in the law for the implementation or the software fix were followed. This article proposes that for liability reasons, it is essential that the EPA collaborates with the industry on these types of mistakes.

¹¹⁹ *Id.*

¹²⁰ Paul Ford. *Our Fear of Artificial Intelligence*. MIT Technology Review, <https://www.technologyreview.com/s/534871/our-fear-of-artificial-intelligence/>, (last visited May 1, 2020).

¹²¹ *Id.*

¹²² *Why AI Is Behind The Rise of RegTech*. Innovation Enterprise, <https://channels.theinnovationenterprise.com/articles/why-ai-is-behind-the-rise-of-RegTech>, (last visited May 1, 2020).

F. Misuse and Abuse of RegTech

Another potential problem with RegTech is the potential misuse by companies to cover their tracks.¹²³ With every good thing, someone will always try to use it for bad. RegTech is not exempt from this. For example, we can look at Uber. When Uber was trying to avoid regulators, they used RegTech to look at the regulations and avoid regulators and police who were attempting to cite or arrest drivers.¹²⁴ In Some instances, Uber was legally avoiding regulators who didn't understand their own regulations or had no jurisdiction.¹²⁵ In other situations, Uber was avoiding being caught where they were; it was neither legal or illegal. In other situations, Uber was avoiding being caught because the drivers were violating local regulations.¹²⁶ Certainly, as RegTech plays a bigger role, the risk of misuse will grow. However, the tools to combat that abuse will also grow.

G. Ensuring Due Process

RegTech may seem like too “big brother to some,”¹²⁷ but properly implemented, it can ensure efficiency and due process. The use of RegTech can help ensure due process by removing the human aspect of someone who may (on purpose or unknowingly) not follow procedure – whether for the benefit or to the detriment of the regulated entity.¹²⁸ However, it is not just due process that RegTech can ensure.

V. WHERE DO WE GO FROM HERE?

A. Educate Key Parties

To properly implement RegTech for environmental regulation, the first step is educating the key stakeholders. Educating all key players may seem like a daunting task when it includes multiple industry players and governmental bodies. However, businesses are already seeing the benefits

¹²³ *Uber used an elaborate secret program to hide from government regulators*, The Verge, <https://www.theverge.com/2017/3/3/14807472/uber-greyball-regulators-taxi-legal-vtos>, (last visited May 1, 2020).

¹²⁴ *Id.*

¹²⁵ *Id.*

¹²⁶ *Id.*

¹²⁷ Thomas Sehested, *Creating A Culture Of Compliance: Why All Successful Businesses Must Do This And Where To Begin*, Forbes, <https://www.dstsyste.ms.com/insights/data-tools-building-a-compliance-structure>, (last visited May 1, 2020).

¹²⁸ *Id.*

discussed earlier in this article of automation.¹²⁹ The problem is not getting them on board, but instead educating the government players (Congress, the agencies, etc.). The EPA must understand the benefits of RegTech for its use, and Congress must understand the need for implementing RegTech.

B. Who Pays, Who Implements?

The proposal would be for the EPA or Congress to create a working group with the EPA and industry players, to collaborate (as addressed earlier in this article). Through this collaboration, the group could develop and implement an initial software program, file syntax, and file format based on XML or other like formats for sharing and transmitting data. This software and related formatting could then be provided by the EPA to outside service providers and developers to create competing systems. The EPA would need to create a department to interact with service providers and developers.

C. A New Department to Implement RegTech

While a new department within the EPA could be created to oversee RegTech within the EPA, it is more feasible to simply have a few employees who coordinate with the Office of E-Government & Information Technology who could create a department to oversee RegTech across the government.¹³⁰ This department would be responsible for collaborating with private firms on the development of certain key aspects, including an application program interface (API) and the continued development and standards for the file format. This department would also be responsible for taking new or modified regulations and publishing them in a file format that could be implemented by the industry RegTech applications. By providing the regulations in a specialized file format, it would allow for both commercial and open-source development of software solutions that use the same rules.

¹²⁹ *The Importance of Business Process Automation*, Aberdeen, <https://www.aberdeen.com/opspro-essentials/importance-business-process-automation/>, (last visited May 1, 2020).

¹³⁰ The Office of E-Government & Information Technology (E-Gov) office, is responsible for guiding and developing the U.S. federal government's use of Internet-based technologies.

Even though the cost upfront may require additional funding, the government will see cost-savings because RegTech will help regulators automate “grunt work,” which equals cost savings in the future.¹³¹

D. Adoption of RegTech for Environmental Regulations

There are a couple of ways to implement RegTech as the “best available technology,” for EPA regulations as required by law.¹³² First, the EPA should adopt RegTech as the “best available technology.” While this would likely be the most straightforward approach, it may face issues because the EPA may need additional funds to implement this. The second way to approach this, would be for Congress to pass legislation requiring agencies such as the EPA to implement RegTech.

Working through Congress would require a number of things. First, educating Congress (as discussed above) on the cost saving and compliance aspects and getting Congress to listen to the experts. Second, any law to implement RegTech would likely need to come with funding for the EPA and other agencies, for the purpose of implementing RegTech.

The third option is for industry to move first. Considering the benefits discussed above, including the return on investment and better risk management, it is more likely that companies will start implementing their own RegTech solutions for environmental compliance before Congress moves on the matter. That means that Congress and the EPA will have to play catch-up, and industry experts will still have to educate Congress and the EPA. However, it could also mean that unhindered by predefined rules, a better solution through RegTech will be the result. Maybe even open-source collaboration. This could even be RegTech firms writing the software in consideration of BAT for EPA regulations, and then providing the government with the tools to connect, mainly, an exposed API and an output format for transmitting regulations and data back and forth, such as XML, or a modified XML format. The schema would need work to work for all parties involved, and could be a template for future collaboration between industry and regulatory agencies.

While companies regulated by the EPA and solution providers can press forward with RegTech solutions for environmental regulations without the EPA, the best-case scenario would be for public-private partnership policy, with cooperation and collaboration between government, industry, and technology. However, for this to work, there will need to be changes in requirements and procedures

¹³¹ William D. Eggers, *The regulator’s new toolkit*, <https://www2.deloitte.com/content/dam/Deloitte/br/Documents/public-sector/Regulator-4-0.pdf>, (last visited May 1, 2020).

¹³² 33 U.S.C. § 1311(b)(2)(A).

regarding compliance with EPA regulations. For example, to take full advantage of all that RegTech has to offer, the EPA should change the way in which it requires the filing of forms, to electronic filing only, allowing automatic reporting. This would not only be more environmentally friendly, but also eliminates needless waste and cost. In some cases, the EPA should even eliminate forms that would no longer be needed once data sharing is in place and provides more information and control than the forms did.

The hope would be that agencies like the EPA will see the success that financial regulators have had by implementing RegTech which has led to a reduction of physical paperwork, and implement RegTech themselves. However, Congress needs to require Federal agencies to work towards implementation of RegTech and provide funding. Even though the cost may be more up front, the result is better compliance and lower cost for agencies and businesses.

E. Efficiency

RegTech ensures efficiency because RegTech can help a regulator know which violators to concentrate on, and because of the data it provides. RegTech can cut down on time spent collecting evidence and conducting investigations. In effect, it encourages companies and industry solution providers to take a role of “private governance,” so that the companies can avoid the consequences of being governed.¹³³

Efficiency also plays a part on the company side though. RegTech can help the company identify potential pitfalls and regulatory violations before they happen, helping the company avoid the costly consequences,¹³⁴ and letting the government agencies focus on real blatant violations, instead of those companies that may have inadvertently violated a regulation. This process provides efficiency not only allowing the government to put resources where they are needed but means a smaller staff can potentially oversee more compliance, leading to a lower cost for the taxpayer.

F. Encourage Collaboration

When RegTech is implemented, as discussed before in this article, collaboration can be very important in ensuring compliance. The EPA should encourage collaboration between themselves,

¹³³ *RegTech's Spillover: From Technological Infrastructure to the Epitome of Private Governance?* <https://www.cyberjustice.ca/en/le-droit-algorithmique/blogue-sur-le-droit-algorithmique/RegTechs-spillover-from-technological-infrastructure-to-the-epitome-of-private-governance/>, (last visited May 1, 2020).

¹³⁴ *Id.*

regulated companies, and third-party developers. One way the EPA can encourage collaboration is by providing the software and file formats as discussed above. The EPA can also encourage collaboration by creating a policy of warning (rather than immediate punishment) those parties who the EPA finds out of compliance from the data that those companies provided.

VI. CONCLUSION

Technology is no longer just its own industry. Technology is becoming a big part of every industry and our everyday lives. However, Congress and many federal agencies are playing catch-up trying to regulate technology. RegTech for environmental compliance is the future for government and industry. As the field of environmental technology expands, it will include a subfield of RegTech for environmental compliance and permitting. This article proposes those in that sector are the ones that have begun implementing RegTech to save time, money, and litigation costs. But if the government can adopt RegTech for environmental regulations as it has in the financial industry, all parties will benefit from a more efficient system that provides better compliance. For this to be a reality, the industry will have to educate Congress and the agencies (such as the EPA) involved so that we have lawmakers who understand the importance. We will not get anything done with a Congress that thinks the internet is an actual series of pipes¹³⁵, or that browser cookies can be eaten.¹³⁶

¹³⁵ Alex Curtis, (June 28, 2006), "*Senator Stevens Speaks on Net Neutrality*", Public Knowledge, (Said during a speech on the United States Senate floor, on the use and availability of the internet).

¹³⁶ '*Mr. Zuckerberg' explains the internet to elderly senators*, Mashable, <https://mashable.com/2018/04/10/mr-zuckerberg-meme-senate-hearing-facebook/>, (Recalling Mark Zuckerberg's hearing before the senate in 2018 over privacy concerns and the value of Facebook), (last visited May 1, 2020).

BIBLIOGRAPHY

CASES

1. General Electric Co. v. Litton Industries Automation Systems, Inc., 920 F.2d 1415 (8th Cir. 1990).

TREATIES & CHARTERS

1. EU Charter of Fundamental Human Rights, Article 8(2) – Protection of Personal Data.

LAWS AND REGULATIONS

1. *Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)*, <https://eur-lex.europa.eu/eli/reg/2016/679/oj>. [Accessed May 1, 2020].
2. *General Data Protection Regulation*, European Union, Directive 2016/679 71.
3. 33 U.S.C. § 1311(b)(2)(A).
4. 42 U.S.C. § 7401-7515.

ACADEMIC SPEECHES

1. Andy Haldane, Chief Economist, Bank of England, Speech at the Maxwell Fry Annual Global Finance Lecture: Managing Global Finance as a System, Birmingham University 10 (Oct. 29, 2014).
2. Vassilis Christophides. Professor of Computer Science at the University of Crete. (In a lecture entitled, *Data Ethics in Algorithmic Decision Making*, at ETIS Laboratory, CY Paris University. Cergy, France. February 27, 2020).

BOOKS

1. Malcolm K. Sparrow, *Imposing Duties: Government's Changing Approach to Compliance*, Praeger Publishers, ix, (1994).
2. O'Neil, Cathy, *Weapons of Math Destruction*, Crown Books, 2016.

AUDIO & VIDEO SOURCES

1. Juan Llanos, *Blockchain Regulation Technology Explained with Juan Llanos, FinTech and RegTech Lead at ConsenSys*. YouTube (2018), https://www.youtube.com/watch?v=rL7H_PQZ0CI (last visited May 1, 2020).

2. Alex Curtis, (June 28, 2006), "*Senator Stevens Speaks on Net Neutrality*", Public Knowledge, (Said during a speech on the United States Senate floor, on the use and availability of the internet).

LAW JOURNALS & REVIEWS

1. Tom C. W. Lin, *Compliance, Technology, and Modern Finance* (2016). 11 Brook. J. Corp. Fin. & Com. L. 159 (2016); Temp. Univ., Legal Studies Research Paper No. 2017-06.
2. Neil Gunningham, *Enforcing Environmental Regulation*, 23:2 J. of Env'tl. L., Oxford U. Press. 170-171. (2011).
3. Douglas W. Arner, János Barberis & Ross P. Buckley, *FinTech, RegTech, and the Reconceptualization of Financial Regulation*, 37 Nw. J. Int'l. L. & Bus. 382 (2016-2017).
4. *FinTech, RegTech and the Reconceptualization of Financial Regulation*. Nw. J. of Int'l. L. & Bus., Forthcoming.
5. Frank Pasquale & Glyn Cashwell, *Four Futures of Legal Automation*, 63 UCLA L. Rev. Discourse 26 (2015).
6. Paul Ford. *Our Fear of Artificial Intelligence*. MIT Technology Review, <https://www.technologyreview.com/s/534871/our-fear-of-artificial-intelligence/>, (last visited May 1, 2020).
7. Matthew D. Zinn, *Policing Environmental Regulatory Enforcement: Cooperation, Capture, and Citizen Suits*, 21 Stan. Env'tl. L.J. 81, 128 (2002).
8. Nizan Geslevich Packin, *RegTech, Compliance and Technology Judgment Rule*, 93 Chi.-Kent L. Rev. 193, 212 (2018).
9. Matthew Hector, *Robots Invade Seyfarth*, 105 Ill. B.J. 19 (2017).
10. Douglas W. Arner et al., *The Evolution of Fintech: A New Post-Crisis Paradigm?* 32–33 (Univ. of New S. Wales, Law Research Series, Working Paper No. 62, 2016), <https://ssrn.com/abstract=2676553> [<https://perma.cc/3NQH-N4HJ>].

TREATISES

1. M. Rausand (2013), *Risk Assessment: Theory, Methods, and Applications*. John Wiley & Sons. pp. 1–28.
2. Patrick Schueffel (2017). *The Concise Fintech Compendium*. Fribourg, Switzerland: School of Management Fribourg.
3. Frank P. Grad (2018), *Treatise on Environmental Law*. § 2.03.

INDUSTRY JOURNALS

11. Douglas W. Arner, *The Emergence of RegTech 2.0: From Know Your Customer to Know Your Data*, 44 J of Fin. Transformation, (2016) at 15.

GOVERNMENT & REGULATOR SOURCES

1. *Effluent Guidelines*, EPA, <https://www.epa.gov/eg/learn-about-effluent-guidelines>, (last visited May 1, 2020).
2. *How We Monitor Compliance*, EPA, <https://www.epa.gov/compliance/how-we-monitor-compliance>, (last visited May 1, 2020).
3. *Laws and Regulations, Regulations*, EPA, <https://www.epa.gov/laws-regulations/regulations>, (last visited May 1, 2020).
4. *GDPR Report*, <https://gdpr.report/news/2018/04/13/why-RegTech-will-central-to-gdpr-success/>, (last visited May 1, 2020).
5. *Principles of Environmental Enforcement*, Office of Enforcement, (US EPA 1992), 7.1.
6. Financial Conduct Authority (FCA), (2016-02-23), *RegTech*, <https://www.fca.org.uk/firms/innovation/regtech>, (last visited May 1, 2020)
7. *Risk Assessment*, EPA, <https://www.epa.gov/risk>, (last visited May 1, 2020).
8. *The GDPR: new opportunities, new obligations*, https://ec.europa.eu/info/sites/info/files/data-protection-factsheet-sme-obligations_en.pdf. [Accessed May 1, 2020].
9. U.S. Sec. and Exchange Com., <https://www.sec.gov/news/speech/piwowar-old-fields-new-corn-innovation-technology-law>, (Remarks at the 2018 RegTech Data Summit - Old Fields, New Corn: Innovation in Technology and Law).

REFERENCE SOURCES

1. *Data Protection 101*. Digital Guardian, <https://digitalguardian.com/blog/what-gdpr-general-data-protection-regulation-understanding-and-complying-gdpr-data-protection>, (last visited May 1, 2020).
2. *RegTech*, Oxford Living Dictionary, <https://en.oxforddictionaries.com/definition/RegTech>, (last visited May 1, 2020).
3. *What is 'RegTech'*, Investopedia, <https://www.investopedia.com/terms/r/RegTech.asp>, (last visited May, 1, 2020).

INDUSTRY SOURCES

1. Daniel Gutierrez, *Big Data for Finance – Security and Regulatory Compliance Considerations*, *INSIDE BIG DATA*, <http://insidebigdata.com/2014/10/20/big-data-finance-security-regulatory-complianceconsiderations/>, (last visited May 1, 2020).
2. *Businesses Don't Have a Handle on GDPR Requirements, Says CEO*, <https://fintech.global/globalregtechsummit/businesses-dont-have-a-handle-on-gdpr-requirements-says-ceo/>, (last visited May 1, 2020).
3. Lucy McNulty, *Compliance Costs to More Than Double by 2022*, Fin News, <https://www.fnlondon.com/articles/compliance-costs-to-more-than-double-by-2022-survey-finds-20170427>, (last visited May 1, 2020).

4. Deloitte, “*Deloitte CFO Signals™ survey*,” *press release*, October 3, 2016, <https://www2.deloitte.com/us/en/pages/about-deloitte/articles/press-releases/tenor-worldwide-geopolitics-creating-concerns.html>, (last visited May 1, 2020).
5. *Explore the frontier of the RegTech Universe*, Deloitte, <https://www2.deloitte.com/lu/en/pages/technology/articles/regtech-companies-compliance.html>, (last visited May 1, 2020).
6. *GDPR compliance: how to tackle the issue beyond EU borders?*, <https://www.wavestone.com/en/insight/gdpr-issues-beyons-eu-borders/>, (last visited May 1, 2020).
7. Micha Bitterli, *Is RegTech “The next big thing”? - First Part*. Deloitte, <http://blogs.deloitte.ch/banking/2017/11/is-RegTech-the-next-big-thing-first-part.html>, (last visited May 1, 2020).
8. Lucy McNulty, *Compliance Costs to More Than Double by 2022*, Fin News, <https://www.fnlondon.com/articles/compliance-costs-to-more-than-double-by-2022-survey-finds-20170427>, (last visited May 1, 2020).
9. Letitia Bolton, *KYC and RegTech: innovating to regain control*, <https://jwg-it.eu/kyc-and-RegTech-innovating-to-regain-control>, (last visited May 1, 2020).
10. *New Excitement on Taxes: RegTech*, Digitalist Magazine, <https://www.digitalistmag.com/finance/2018/10/15/new-excitement-on-taxes-RegTech-06190347>, (last visited May 1, 2020).
11. *One year of GDPR: did the General Data Protection Regulation turn out to be a burden or an opportunity for companies?*, <https://siriuslegaladvocaten.be/en/one-year-of-gdpr-did-the-general-data-protection-regulation-turn-out-to-be-a-burden-or-an-opportunity-for-companies/>, (last visited May 1, 2020).
12. *RegTech And Vape Juice*, DWD Blog, <https://www.dwdonline.com/blog/RegTech-and-vape-juice.html>, (last visited May 1, 2020).
13. *RegTech Explained*, Loanlogics, <https://loanlogics.com/wp-RegTech.html>, (last visited May 1, 2020).
14. *RegTech is the new FinTech*, Deloitte, <https://www2.deloitte.com/ie/en/pages/financial-services/articles/RegTech-is-the-new-FinTech.html>, (last visited May 1, 2020).
15. *RegTech’s Spillover: From Technological Infrastructure to the Epitome of Private Governance?* <https://www.cyberjustice.ca/en/le-droit-algorithmique/blogue-sur-le-droit-algorithmique/RegTechs-spillover-from-technological-infrastructure-to-the-epitome-of-private-governance/>, (last visited May 1, 2020).
16. *RegTech Universe*, Deloitte, <https://www2.deloitte.com/lu/en/pages/technology/articles/RegTech-companies-compliance.html>, (last visited May 1, 2020).
17. *RegTech: What is it and What Are the Benefits?* Accenture, <https://bankingblog.accenture.com/RegTech-what-is-it-what-are-benefits>, (last visited May 1, 2020).

18. Sharifah Nursyafuqah, *Singapore leading the way in Asia's RegTech wave*. Feb. 27, 2017, <https://www.techinasia.com/talk/singapore-lead-asias-RegTech-wave>, (last visited May 1, 2020).
19. Piotr Kaminski, Daniel Mikkelsen, Thomas Poppensieker, and Kate Robu, *Sustainable compliance: Seven steps toward effectiveness and efficiency*. McKinsey & Company. <https://www.mckinsey.com/business-functions/risk/our-insights/sustainable-compliance-seven-steps-toward-effectiveness-and-efficiency>, (last visited May 1, 2020).
20. Financier Worldwide Magazine, *The future of RegTech: a skyrocketing industry?*, <https://www.financierworldwide.com/the-future-of-RegTech-a-skyrocketing-industry/>, (last visited May 1, 2020).
21. *The Importance of Business Process Automation*, Aberdeen, <https://www.aberdeen.com/opspro-essentials/importance-business-process-automation/>, (last visited May 1, 2020).
22. *The regulator's new toolkit*, Deloitte, <https://www2.deloitte.com/insights/us/en/industry/public-sector/reducing-compliance-costs-with-RegTech.html>, (last visited May 1, 2020).
23. *Through "Regtech" Solutions, GDPR will be the Future Technical and Operational Standard for Personal Data Processing*, <https://observatoire-fic.com/en/through-regtech-solutions-gdpr-will-be-the-future-technical-and-operational-standard-for-personal-data-processing-pierre-olivier-grenouiller-legal-it-factory/>, (last visited May 1, 2020).
24. *What is Corporate Compliance and Why it is Important*, PowerDMS, <https://www.powerdms.com/blog/what-corporate-compliance-is-why-compliance-is-important/> (last visited May 1, 2020).
25. Melanie Waddell, *What is RegTech, Anyway?*, <https://www.thinkadvisor.com/2018/04/04/what-is-RegTech-anyway/>, (last visited May 1, 2020).
26. Tom Yan, *Will Regtech be the solution for China's challenges?*, June 08, 2017, <https://www.kapronasia.com/china-banking-research-category/item/874-will-regtech-be-the-solution-for-china-s-challenges.html>, (last visited May 1, 2020).
27. *Why AI Is Behind The Rise of RegTech*. Innovation Enterprise, <https://channels.theinnovationenterprise.com/articles/why-ai-is-behind-the-rise-of-RegTech>, (last visited May 1, 2020).

NEWS SOURCES

1. Serenity Gibbons, *3 Things You Need For a Successful Startup*, Forbes, <https://www.forbes.com/sites/serenitygibbons/2018/05/31/3-things-you-need-for-a-successful-startup/>, (last visited May 1, 2020).
2. Thomas Sehested, *Creating A Culture Of Compliance: Why All Successful Businesses Must Do This And Where To Begin*, Forbes, <https://www.dstsyste.ms.com/insights/data-tools-building-a-compliance-structure>, (last visited May 1, 2020).

3. *FDA asks e-cigarette giants to help regulate themselves*, The Verge, Oct. 31, 2018, <https://www.theverge.com/2018/10/31/18047790/electronic-cigarettes-vaping-juul-myblu-vuse-logic-fda-crackdown>, (last visited May 1, 2020).
4. Julie DiMauro, *FINRA's RegTech report shows uses and challenges of new technology*, Reuters, <https://www.reuters.com/article/bc-finreg-RegTech-challenges/finras-RegTech-report-shows-uses-and-challenges-of-new-technology-idUSKCN1M72F8>, (last visited May 1, 2020).
5. *Internet Access in China – Wi-Fi and Internet Censorship*, China Highlights, <https://www.chinahighlights.com/travelguide/article-internet-access-in-china.htm>, (last visited May 1, 2020).
6. *'Mr. Zuckerberg' explains the internet to elderly senators*, Mashable, <https://mashable.com/2018/04/10/mr-zuckerberg-meme-senate-hearing-facebook/>, (Recalling Mark Zuckerberg's hearing before the senate in 2018 over privacy concerns and the value of Facebook), (last visited May 1, 2020).
7. *Snapshot of Singapore's Booming Regtech Scene*, <https://fintechnews.sg/25967/regtech/regtech-singapore/>, (last visited May 1, 2020).
8. *Uber used an elaborate secret program to hide from government regulators*, The Verge, <https://www.theverge.com/2017/3/3/14807472/uber-greyball-regulators-taxi-legal-vtos>, (last visited May 1, 2020).
9. Yoolim Lee and Chanyaporn Chanjaroen, *Why Fintech Startups Love Singapore's Hawk-Eyed Central Banker*, <https://www.bloomberg.com/news/articles/2018-10-25/fintechs-can-play-in-singapore-s-sandbox-just-don-t-cross-ravi-menon>, (last visited May 1, 2020).

Author Biography

Philip Deatherage started his first business venture at fourteen and has over twenty-five years of experience in e-commerce, technology, business, and consulting. He has studied international and domestic law in seven countries, and holds a Juris Doctorate from Vermont Law School, and is a candidate for the Master of Environmental Law and Policy (May 2021). He also holds an LL.M in French and European Union Law, and an M2 in Taxation Law, Business Law & Compliance from CY Cergy Paris Université - Faculté de droit, and a Bachelor of Arts in Liberal Arts and Sciences in the fields of Anthropology, English, and Philosophy from San Diego State University, San Diego, California.