

# The Path of Tax Law: Toward Legal Singularity

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Benjamin Alarie is the Osler Chair in Business Law at the University of Toronto and the CEO of Blue J Legal Inc., and Rory McCreight and Cristina Tucciarone are lead analysts at Blue J Legal.



BENJAMIN ALARIE



RORY MCCREIGHT



CRISTINA  
TUCCIARONE

In this article, the authors give insight into the legal singularity and the potential of artificial intelligence.

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## I. Introduction

Artificial intelligence is advancing rapidly. It is already changing many areas of our lives, including our work as tax professionals. This change is especially noticeable in the legal world, which is trying to understand and adapt to it. *Artificial Intelligence Can Make Law Radically Better* is a volume that aims to improve the law. The volume advances a

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comprehensive, complete, and predictable. It carefully develops and examines the concept of the legal singularity, exploring its key foundations, potential ramifications, and pathways for responsible technological progress. AI safety is a key focus.

In this installment of Blue J Predicts, we consider the implications of the legal singularity for tax professionals, drawing on insights from this recently published book.

## II. The Legal Singularity

### A. The Concept

The concept of the legal singularity has emerged as a compelling theoretical construct in contemporary legal scholarship. It anticipates a future in which the law becomes fully comprehensive and predictable, able to address and resolve nearly all types of legal uncertainties in real time. The term originated from the paper “The Path of the Law: Toward Legal Singularity,”<sup>2</sup> and it has profound implications for the future of tax law and its practice.

*The Legal Singularity* continues the work begun in “The Path of the Law,” detailing AI’s potential to reshape tax law theory, practice, and justice administration. It scrutinizes how emerging technologies, such as big data analytics and machine learning, could revolutionize the interpretation and accessibility of tax law, driving us closer to the legal singularity. The legal singularity depicts a future in which intelligent machines and algorithms will transform our legal services into more responsive and accessible tax systems, domestically and around the world.

### B. The Evolution of Legal Information

The path toward the legal singularity is made possible by the widespread availability of legal information. The connection between law and information stems from the text-based nature of law. Today, common law and civil law legal systems rely heavily on textual components such as codes, statutes, and case law, which lawyers use to build arguments and provide counsel. Tax law is especially complex, and it relies heavily on published guidance. In contrast, in ancient societies the codification of law was limited. The invention of the printing press significantly fostered modern legal precedent, encour

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strengthening the textual bases for legal education, and giving rise to the contemporary legal profession.

Next, *The Legal Singularity* follows the evolution of legal information management from the analog era, in which law library books were physically perused, to the digital era and its searchable electronic databases. The digital transformation not only enhanced information retrieval but also heightened the standards for comprehensive and efficient legal research. This shift redefined our relationship with legal precedent, bolstered our ability to predict legal outcomes, and improved public engagement with case law. The features of an ideal law-finding system were envisioned to include language-based search capabilities, automatic system updates, support for various searching strategies, assistance in filling research gaps, and semantic and syntactical analysis through extensive reading.<sup>3</sup> It is interesting that those characteristics are reminiscent of contemporary natural language processing techniques.

The current landscape marks what will prove to be the early days of the computational era of legal information, in which computing power is harnessed to understand the law. Traditional legal research has often been cumbersome for legal practitioners because of the inherent ambiguity of the law and the unstructured nature of legal information. However, computational legal tools powered by AI can rapidly and accurately analyze vast amounts of legal data. These tools can uncover connections and patterns that may be missed by traditional methods and offer predictive models based on the sophisticated statistical analysis of legal information. The main objective of understanding tax law is to predict how the IRS and courts may apply tax law in the future, so this approach serves the fundamental purpose of legal information: to inform legal predictions.

As legal tools evolve, they increasingly aid legal practitioners in predicting case outcomes and personalizing legal advice while also democratizing access to legal information. These advancements are increasingly reshaping the legal landscape, leading us toward a future in which legal research, decision-making, and dispute resolution are significantly enhanced by computational intelligence. This increased computational prowess has significant implications for the accessibility and clarity of tax law. Tax law is particularly code- and rule-based, and it is a crucial way in which all citizens interact with the tax system. In an assessment-based tax system, access to

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taxpayers, and the government shares an interest in ensuring an equitable and transparent application of tax rules to maintain taxpayer confidence.

### C. Exploring Complete Law

Currently, the legal landscape is marred by a frustrating lack of definitive answers to legal questions, leading to the common response, “It depends!” when seeking legal advice. This reflects the law’s inherent incompleteness, requiring context-specific factors and ex post elaboration to provide substantive meaning to legal rules. Such ambiguity can have significant consequences as individuals struggle to understand their real-time rights and obligations. Outcomes for taxpayers can vary based on differing decision-makers’ perspectives and interpretive approaches. That is what “The Path of the Law” calls “incomplete” law.

“The Path of the Law” recognizes that incomplete law can lead to both over- and underinclusiveness. For instance, enforcing tax law verbatim can occasionally lead to undesirable tax consequences, such as double taxation, while general antiavoidance and antiabuse provisions are often required to uphold the spirit of the law. Ultimately, the rule of law requires laws to be declared and publicized in advance so that affected individuals have a chance to learn about and respond to the law’s requirements; that also affords taxpayers and their advisers the chance to identify and capitalize on any gaps or ambiguities in the law.

Although “The Path of the Law” acknowledges that completeness is required to achieve the legal singularity, it does not fully describe the state of law in the legal singularity. *The Legal Singularity* steps in to elaborate on what it means for the law to achieve completeness, outlining three key characteristics. First, the law would be well designed, striking an appropriate balance among the various competing public policy goals it affects. Second, the law would be well defined, enabling consistent and reliable application of rules and standards in specific situations. Finally, the law would be administered effectively and with minimal errors. Importantly, *The Legal Singularity* clarifies that “complete” is not synonymous with “finished.” Instead, it refers to adequate coverage, acknowledging the ongoing need for legal advocacy and diverse perspectives on justice.

*The Legal Singularity* recognizes the challenge of human management (the future will see a fully automated system), but it also characterizes this as a

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valuable insights. Traditionally, decision-makers have grappled with a trade-off between rule specificity and clarity. However, enhanced AI models could revolutionize that dynamic, enabling decision-makers to draft rules that are both clearer and more specific. Future rule designers with access to advanced computational capabilities will be able to choose between two advanced rule types to improve specificity: dynamic rules and “microdirectives.”<sup>4</sup>

Dynamic rules are as specific as traditional rules but also adapt to policymakers’ objectives, allowing modulation. Microdirectives use machines to design a vast catalog of context-specific rules optimized to the rulemakers’ goals. But microdirectives are more specific in that they are tailored to individual situations and require more information than dynamic rules to create. For example, imagine the government wants to provide incentives to lower greenhouse gas emissions by 50 percent over 10 years with tax credits whose eligibility is based on reducing emissions. A dynamic rule could be set to adjust the eligibility requirements each year based on what reduction is necessary in that year so that the policymaker’s goal remains on track. A microdirective, on the other hand, could be used to set different standards for companies depending on their market valuation, holding larger companies to tougher emissions standards to ensure tax credits are evenly distributed. Thus, as the legal system becomes more specific, closing gaps and loopholes, the law’s predictability and reliability will increase, leading to a more complete legal framework.

### III. *The Legal Singularity* and ‘The Path of the Law’

#### A. Criticisms of the Concept

*The Legal Singularity* significantly expands on the concepts in “The Path of the Law.” Since the publication of the latter in 2016, the concept of the legal singularity has sparked discussions among tax and legal professionals, with some critics raising concerns about its implications.

*The Legal Singularity* responds to those criticisms, categorizing them into two main groups.

The first category of critics contend that computational law is reductionist and cannot capture the uniqueness and multidimensionality inherent in legal reasoning. They say attempts to replicate judicial reasoning through form thereby rendering machine learning ill-suited for judges.<sup>5</sup> While AI can provide valuable insights, it also sparks disagreements about normative beliefs c

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camp express concern about the potential harm to the public value of the law and the legal process. They maintain that the law's essence lies beyond quantifiable data and is best deciphered by skilled lawyers. For example, they would argue that a machine is unable to make the determination on inequitable relief in an innocent spouse case because it depends on a highly contextual determination on what is inequitable in each situation. However, using a data set of all available innocent spouse cases, machines are demonstrably able to extract the key factors of a judge's inequitable relief analysis in real cases to predict future outcomes with confidence.<sup>7</sup>

The second category of critics defend the normative goals of the rule of law against the legal singularity. Robert F. Weber presents an especially strong critique, asserting that legal prediction through computational law could erode the predictability and universality principles — core pillars of the rule of law.<sup>8</sup> The predictability principle states that members of a liberal society should be able to predict how the law applies to them, while the universality principle emphasizes the law's general applicability to all people.<sup>9</sup> *The Legal Singularity* acknowledges the importance of predictability in the law but contends that computational law can actually strengthen it. It emphasizes that current legal uncertainty is widespread and asserts that computational law could enhance clarity and predictability for both legal professionals and the public.

Weber further argues that high specificity in the law undermines the sense of community that the law fosters. *The Legal Singularity* challenges that viewpoint, stating that current legal practices often contradict the law's aspiration for general applicability.<sup>10</sup> It points out that individuals with specialized skills are often held to higher standards, as exemplified within specific areas of tax law such as accuracy-related penalties, in which more experienced businesspeople with tax backgrounds are more likely to be liable for tax penalties than other individuals.<sup>11</sup>

The ongoing debate about the future of law in the computational era will likely continue. *The Legal Singularity* encourages greater participation in shaping the profession's path forward. Envisioning a future in which judges, regulators, and legal professionals play vital roles in shaping the system, *The Legal Singularity* is understandable to practitioners and mor

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## B. The Legal Singularity and Tax Professionals

While “The Path of the Law” briefly explores the legal singularity’s impact on the legal profession, *The Legal Singularity* extensively examines its implications for the judiciary, government, and legal profession, offering entire chapters dedicated to each area.

In terms of government impact, *The Legal Singularity* goes beyond “The Path of the Law” to explore what a governance model that fully embraces technology could look like. It shares the situation in Estonia, the country hailed as the world’s most advanced digital society. Nearly all government services in Estonia have been successfully integrated into a single digital platform that can be accessed 24/7 online. The project saves the country “844 years of working time annually” and has transformed the everyday lives of Estonians, enabling faster and more efficient government service and administration.<sup>12</sup>

Regarding tax administration, the IRS already uses AI tools for various tasks, including providing tax-related answers using natural language processing.<sup>13</sup> Moreover, further use of AI-powered computation methods could help the agency process the roughly 35 million unreviewed tax returns for 2021, which would demonstrate that AI tools can contribute to efficient public service delivery and increase transparency and public trust in government institutions.<sup>14</sup>

AI systems can also aid in drafting legislation by predicting the consequences of legislative rules and proposing new text, thereby clarifying legislative intent and enhancing democratic control. These systems could assist legislators with estimating the budget effects of proposed changes to the Internal Revenue Code. That aligns the law with our fundamental values, providing consistent coverage that evolves with societal changes.

Beyond governance, *The Legal Singularity* delves into the profound effects of the legal singularity on the legal profession and how increased legal literacy among the public will reshape the profession. This section of the book discusses the major factors contributing to the current inaccessibility of legal services: the unaffordability of legal representation and the complexity of the law.

Regarding unaffordability, despite an inc  
the high cost of legal services may cause

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encountering serious legal issues, while others may choose to represent themselves even in high-risk legal disputes.<sup>15</sup> That is especially true in tax law, in which those with the means to hire professionals often benefit from astute tax planning. This imbalance of supply and demand of lawyers can be attributed to various distortions within the legal market, one significant distortion being the disproportionate buying power of large corporations that essentially outbid less well-resourced individuals in the legal marketplace.<sup>16</sup>

Here, it is important to acknowledge the criticism that AI could exacerbate the problem of access to justice by acting as an expensive gatekeeper to legal data. Generative AI may further benefit those with existing access, entrenching inequalities as crucial legal information remains behind paywalls.<sup>17</sup> Nevertheless, there is hope that achieving the legal singularity through widespread, accessible computing power will resolve those access issues and promote a healthy public scrutiny of and engagement with the legal process.

The unaffordability problem is closely linked to the second issue contributing to the inaccessibility of legal services — complexity. Lawyers offer what economics literature calls a credence good; that is, lawyers sell their services as well-informed experts to less well-informed, nonexpert consumers.<sup>18</sup> That creates several disadvantages for consumers, including propagating dependence on legal professionals for diagnoses and solutions to their legal needs and the inability to determine the necessity and quality of the service provided. That knowledge gap also means consumers have little ability to influence pricing or discourage the billing of unnecessary legal services.

*The Legal Singularity* proposes that the key to solving this access-to-justice issue is “universal legal literacy,” in which every individual can easily comprehend their legal rights and obligations. This approach involves three stages: basic legal literacy, legal comprehension, and practical legal literacy. Empowering individuals with fundamental legal knowledge can rectify the power imbalance in the lawyer-client relationship and prevent lawyers from monopolizing the diagnosis and solution process. *The Legal Singularity* envisions a future in which the complexity of the law coexists with a more reliable and enhanced consumer experience, facilitated by AI.

That raises a question about the role of tax planning information ready access to tax planning information

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remain in high demand because they will be needed to mediate the algorithmically provided advice with their expertise. The increased efficiency gains that this technology will provide to tax professionals will enable them to provide services to more clients, faster. This will be as true for professionals assisting major corporate acquisition transactions as it is for those assisting individual clients with small-dollar controversies.

*The Legal Singularity* posits that human regulators will play a crucial role in ensuring that AI-proposed regulations align with the government's objectives. Judges reviewing tax cases will need to compare algorithmic decisions with their own reasoning and explore any discrepancies. Further, tax professionals themselves will have significant influence on the legal singularity. As technology rapidly advances, changes to tax and legal systems will keep pace because of creative and economic forces. The exponential growth of computing power, increased use of algorithms in the private sector, and growing government openness to incorporating AI will inevitably affect the legal field.

### C. Ethically Entering the Computation Era

"The Path of the Law" remains silent on an important topic that is thoroughly addressed in *The Legal Singularity* — the ethical and equitable considerations in developing AI predictive tools. *The Legal Singularity* highlights how algorithmic decision-making (ADM) tools can perpetuate inequality and reemphasizes the need for the responsible development of these tools. For example, a recently conducted study of IRS audits revealed a significant disparity, with Black taxpayers between 2.9 and 4.4 times more likely to face audits compared with non-Black individuals.<sup>19</sup> If the IRS doesn't address this trend in its algorithms, ADM tools will perpetuate those racial disparities and even amplify them over time. Rather than abandoning their use, addressing ADM tools' potential harm could help achieve equality and fairness, particularly when our innate biases make it difficult to do so.

*The Legal Singularity* introduces a framework for evaluating social problems related to AI and ADM, categorizing them in two types: reflection and amplification problems, and techno-epistemic problems. Reflection and amplification problems involve projecting current or historical social issues into the future, and do some work to ensure that historical issues are addressed. Historically, when drafting regulatory exams, the taxpayer, and AIs would pick up on the

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guidance advises regulators to use gender-neutral terms to rectify this issue.<sup>20</sup> Techno-epistemic problems are those that are unique to AI-enabled prediction or are created when AI is used in legal settings, potentially requiring tax professionals to undergo additional training to understand and mitigate these technological challenges.

The decontextualization of data is a critical element in understanding those problems. Legal data, reduced to simplistic two-dimensional representations and isolated from its social, political, and economic context, can reproduce harmful hierarchies.<sup>21</sup> Thus, systems may not only mirror existing social biases but also exacerbate them by spreading and embedding them in institutions, often disguised by the perception that technology is objective.

Algorithmic affirmative action, which involves manipulating data to tackle discrimination, is a popular proposed solution for addressing decontextualization.<sup>22</sup> However, the approach is problematic for two reasons. First, data itself is already distorted and lacks context, making it difficult to determine the extent of correction needed and increasing the likelihood of errors in the system. Second, manipulating data undermines the empirical evaluation of predictive tools, resulting in systems that produce socially desirable outcomes but do not accurately reflect the data.

While some argue that achieving fairness through ADM is impossible if social issues are reflected in historical training data, *The Legal Singularity* considers this view too fatalistic. The decontextualization problem arises when algorithm designers rely on limited data inputs. Therefore, a viable solution is to improve algorithmic design by considering a wider range of social context and extralegal considerations.<sup>23</sup>

#### IV. Tracking Toward the Legal Singularity

We are not yet on the cusp of achieving any legal singularity, and the development of AI systems for legal use is an ongoing and iterative process. However, the progress that has been made even in the years between the releases of “The Path of the Law” and *The Legal Singularity* has been explosive.

As a prime example, “The Path of the Law” learning, predictor-style models used in predictions or classifications based on in

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how a court would likely decide a specific legal issue. The output of predictor-style models is generally a category label or a probability score for a specific outcome. Illustrations of a machine learning, predictor-style model are the sample predictions that Blue J has put forth in previous installments of Blue J Predicts in the pages of *Tax Notes*.<sup>24</sup> Blue J's worker classification prediction tool, for instance, based on hundreds of past court decisions, can predict the importance of different factors and assess the likelihood of a worker being considered an employee or independent contractor for tax purposes, while providing a detailed legal explanation for the position.

Alongside the publication of *The Legal Singularity*, the public has seen that generative AI technology has rapidly evolved from its initial applications in natural language processing to more sophisticated large language models capable of at least simulating an understanding of complex legal frameworks. Today, cutting-edge generative AI algorithms can analyze vast legal data sets, discern patterns, and generate coherent legal arguments, thereby augmenting legal professionals' capabilities.<sup>25</sup> This burgeoning AI capacity unlocks novel opportunities to address the incompleteness of the law by producing more specific and contextually tailored legal rules.<sup>26</sup>

As generative AI progressively refines its capacity to interpret and generate legal content, it emerges as a critical enabler for achieving the legal singularity. By reducing the reliance on subjective interpretations and mitigating the effect of incomplete laws, generative AI serves as a navigational guide for legal practitioners and decision-makers. However, ethical and regulatory considerations must accompany this journey to ensure transparent, fair, and accountable implementation of AI-generated legal solutions. It will require collaboration between AI researchers, legal experts, policymakers, and ethicists to shape the future of AI in law responsibly.

## V. Conclusion

The legal singularity refers to the potential future point at which advancements in AI and technology lead to a profound and paradigm-shifting impact on the legal system and profession. Representing a pivotal step to the prospect of addressing the long-standing

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fusion of AI-driven rulemaking, personalized legal directives, and responsiveness to dynamic contexts presents an unprecedented opportunity to usher in a new era of legal clarity.

But this transformation must be approached with care, embracing AI's potential while upholding ethical principles and safeguarding the integrity of the legal system. By embracing generative AI's capabilities judiciously, tax professionals can harness its power to redefine the boundaries of legal completeness and chart a course toward a more equitable and effective legal landscape.

## FOOTNOTES

<sup>1</sup> Abdi Aidid and Benjamin Alarie, *The Legal Singularity: How Artificial Intelligence Can Make Law Radically Better* (2023). The book is available now through Audible and Amazon. It is the No. 1 new release in data science and No. 1 in criminology on Amazon.com. The first chapter is available at: <https://www.book2look.com/book/8mi7cTGLNz>.

<sup>2</sup> Alarie, "The Path of the Law: Towards Legal Singularity," 66 *U. Toronto L. J.* 443 (2016).

<sup>3</sup> William B. Eldridge and Sally F. Dennis, "The Computer as a Tool for Legal Research," 28 *Law & Contemp. Probs.* 78 (1963).

<sup>4</sup> For a discussion of microdirectives, see Anthony J. Casey and Anthony Niblett, "The Death of Rules and Standards," 92 *Ind. L.J.* 1401 (2017).

<sup>5</sup> Jennifer Cobbe, "Legal Singularity and the Reflexivity of Law," in *Is Law Computable? Critical Perspectives on Law and Artificial Intelligence* (2020).

<sup>6</sup> Frank Pasquale, "The Resilience Fragility of the Law," in *Is Law Computable? Critical Perspectives on Law and Artificial Intelligence* (2020).

<sup>7</sup> Alarie, Susan Massey, and Christopher Yan, "[Relief of Innocent Spouses — Not So Podlucky](#)," *Tax Notes Federal*, Feb. 27, 2023, p. 1339.

<sup>8</sup> Robert F. Weber, "Will the 'Legal Singularity' Change the Game?" *Tech. L. Rev.* 97 (2020).

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<sup>9</sup> *Id.*

<sup>10</sup> Omri Ben-Shahar and Ariel Porat, "Personalizing Negligence Law," 91 *N.Y.U. L. Rev.* 627, 629-630 (2015).

<sup>11</sup> Alarie, Cristina Tucciarone, and Yan, "Overcoming Accuracy-Related Penalties With Reasonable Cause," *Tax Notes Federal*, Mar. 27, 2023, p. 2145.

<sup>12</sup> e-Estonia, "Government Cloud."

<sup>13</sup> Jeff Butler, "Analytical Challenges in Modern Tax Administration: A Brief History of Analytics at the IRS," 16 *Ohio St. Tech. L.J.* 258, 264 (2020).

<sup>14</sup> Carmen Reinicke, "Still Waiting on Your 2020 Tax Refund? You Aren't Alone," CNBC, June 30, 2021.

<sup>15</sup> Daniel Fish, "Are There Too Many Lawyers?" PrecedentJD, Sept. 6, 2017.

<sup>16</sup> Gillian K. Hadfield, "The Price of Law: How the Market for Lawyers Distorts the Justice System," 98 *Mich. L. Rev.* 953, 965 (2000).

<sup>17</sup> Joe Patrice, "What if AI Is Actually WORSE for Access to Justice?" Above the Law, July 20, 2023.

<sup>18</sup> Uwe Dulleck and Rudolf Kerschbamer, "On Doctors, Mechanics, and Computer Specialists: The Economics of Credence Goods," 44 *J. Econ. Lit.* 5 (2006).

<sup>19</sup> Lauren Loricchio, "Black Taxpayers Much More Likely to Be Audited, Report Finds," *Tax Notes Federal*, Feb. 6, 2023, p. 896.

<sup>20</sup> Internal Revenue Manual 32.1.4.

<sup>21</sup> Sandra G. Mayson, "Bias In, Bias Out"

<sup>22</sup> Anupam Chander, "The Racist Algorithm"

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<sup>23</sup> The most recent previous edition of Blue J Predicts is dedicated wholly to the ethical use and creation of data-driven tools for tax practitioners; see Alarie and Rory McCreight, “[The Ethics of Generative AI in Tax Practice](#),” *Tax Notes Federal*, July 31, 2023, p. 785.

<sup>24</sup> See, e.g., Alarie, Tucciarone, and Yan, *supra* note 11. Alarie, Massey, and Yan, *supra* note 7. Alarie and Ann Velez, “[Cashaw: Conflicting Duties and the Trust Fund Recovery Penalty](#),” *Tax Notes Federal*, Nov. 28, 2022, p. 1257.

<sup>25</sup> See Alarie et al., “[The Rise of Generative AI for Tax Research](#),” *Tax Notes Federal*, May 29, 2023, p. 1509, also available at [SSRN](#).

<sup>26</sup> This is demonstrated by Blue J’s newly released Ask Blue J, an AI-powered, ChatGPT-style tax research platform. Ask Blue J leverages the latest large language models and Blue J’s vast tax database to deliver quality answers to challenging tax questions in seconds. Answers are backed by relevant source documents so that tax professionals can understand the context of the response and use those documents to deepen their understanding of the area of law.

## END FOOTNOTES



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