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LEGAL GENERATIVE AI

The New Equation for Lawyers of the Future

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The legal profession is undergoing a transformative shift with generative artificial intelligence ("AI"). Integrated into legal technology, it now enhances legal tasks like contract drafting and analysis. Generative AI boosts productivity by processing vast data and providing real-time insights. Case studies show significant time reductions, though human oversight is vital for accuracy. As AI becomes more common, lawyers must be trained not only in legal principles but also in the nuances of AI and prompt engineering, ensuring a future where technology and human expertise seamlessly integrate to enhance legal services. As William Gibson observed: "The future is already here – it's just not evenly distributed".

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I. Introduction

1 Artificial intelligence[1] ("AI"), a term introduced at the 1956 Dartmouth Conference, marked the inception of AI as a research domain and has since driven major advancements leading to today's generative AI applications. Initially, AI research in the 1950s focused on symbolic reasoning and problem-solving. This focus shifted in the 1970s and 1980s to AI systems that utilised predefined rules for decision-making and problem-solving. These early iterations of AI were more about applying structured

1 Artificial intelligence ("AI") refers to the simulation of human intelligence processes by machines, especially computer systems.

algorithms to perform specific tasks rather than mimicking human thought processes.

2 The 1980s and 1990s saw a resurgence of interest in neural networks,[2] leading to notable progress in machine learning.[3] This era marked a transition from rule-based systems to models that could learn from data. The advancements in machine learning paved the way for the rise of deep learning,[4] natural language processing,[5] and generative models in the 2000s and 2010s. These technologies are now foundational to the development of generative AI,[6] which can produce new outputs such as text, images, and audio, rather than merely following predefined rules.

3 These technological advancements have been progressively integrated into legal technology ("legal tech") solutions that have become familiar to lawyers over the past 50 years. This

2 Neural networks are a subset of machine learning models inspired by the structure and function of the human brain. These networks consist of interconnected nodes (neurons) organised in layers, which process data by transmitting signals from input to output layers. Neural networks are particularly effective in recognising patterns and making predictions from complex datasets. See IBM's definition for neural network: IBM, "What Is a Neural Network" <https://www.ibm.com/think/topics/neural-networks> (accessed 27 February 2025).

3 Machine learning is a subset of artificial intelligence that involves the use of algorithms and statistical models to enable computers to perform tasks without explicit instructions. See IBM's definition for machine learning: IBM, "What Is Machine Learning?" <https://www.ibm.com/think/topics/machine-learning> (accessed 27 February 2025).

4 Deep learning is a subset of machine learning that utilises neural networks with many layers (hence, "deep") to model complex patterns in large amounts of data. See IBM's definition for deep learning: IBM, "AI vs. Machine Learning vs. Deep Learning vs. Neural Networks: What's the Difference" <https://www.ibm.com/think/topics/ai-vs-machine-learning-vs-deep-learning-vs-neural-networks> (accessed 27 February 2025).

5 Natural language processing is a branch of artificial intelligence that helps computers understand, interpret, and manipulate human language. See IBM's definition for natural language processing: IBM, "What Is NLP (Natural Language Processing)?" <https://www.ibm.com/think/topics/natural-language-processing> (accessed 27 February 2025).

6 Generative AI refers to a category of artificial intelligence algorithms that generate new data or content based on training data. These models can create text, images, audio, and more. Refer to the World Economic Forum article on the definition for Generative AI: World Economic Forum, "What Is Generative AI? An AI Explains" <https://www.weforum.org/stories/2023/02/generative-ai-explain-algorithms-work/> (accessed 27 February 2025).

journey began with the rise of legal research databases in the 1970s and 1980s, continued with the development of practice management[7] solutions in the 1980s and 1990s, expanded with e-discovery[8] tools necessitated by e-mail data in the 1990s and 2000s, and advanced with natural language processing for enhanced document analysis and generation in the 2010s. At the start of this decade, we are witnessing the emergence of generative AI models[9] that can craft legal documents and provide detailed legal analysis.

4 Today, legal generative AI[10] is rapidly evolving, with applications ranging from contract drafting, contract redlining, deep legal analysis, automated case summaries, case chronology drafting, and legal research. In 2025, there are more than 100 legal generative AI solutions across the globe that are tailored to meet the needs of lawyers in law firms and corporate legal departments. The current state of legal generative AI is characterised by its ability to handle large volumes of data, provide real-time insights and assist in decision-making processes.

7 Practice management refers to the administrative and business aspects of running a professional service practice, such as a law firm or consultancy. This includes managing client information, scheduling, billing, and compliance with regulatory requirements. Refer to the Law Gazette article for the definition of practice management: The Law Society of Singapore, Legal Productivity and Innovation Department, "Tech Review: Practice Management Solutions" <https://v1.lawgazette.com.sg/2017-06/1884.htm> (accessed 27 February 2025).

8 Electronic discovery, or e-discovery, is the process of identifying, collecting, and producing electronically stored information (ESI) in response to a request for production in a lawsuit or investigation. This includes e-mails, documents, presentations, databases, voicemails, audio and video files, social media, and websites. Refer to the definition of e-discovery by the Association for Intelligent Information Management: Association for Intelligent Information Management, "What Is eDiscovery?" <https://www.aiim.org/what-is-ediscovery> (accessed 27 February 2025).

9 Generative AI Models are specific types of AI algorithms designed to generate new data or content by learning patterns from input data. These models include generative adversarial networks and variational autoencoders.

10 Legal generative AI refers to the application of generative AI technologies in the legal field, such as drafting legal documents, predictive analytics, and automating legal research. These tools aim to enhance efficiency and accuracy within legal practices.

II. Unleashing legal productivity with legal generative AI

5 Legal generative AI tools can augment lawyers by enhancing legal workflows through the automation of routine tasks such as document drafting, contract review, and legal research. This automation allows lawyers to focus on the strategic aspects of legal work, including problem-solving, strategising, negotiating, and finalising matters. For instance, generative AI-powered legal tech solutions can quickly analyse large datasets to identify relevant case law, statutes, and regulations, thereby saving countless hours of manual research.

6 Let us bring this to life with case studies[11] on (a) how legal generative AI is augmenting lawyers with high-volume contract review and summarisation and (b) how lawyers are leveraging legal generative AI in creating case chronology for dispute resolution.

A. Case study: legal generative AI transforming contract extraction and summarisation

7 In December 2023, the Monetary Authority of Singapore ("MAS") released new notices on outsourcing (MAS Notices 658 and 1121) that are applicable to banks and merchant banks in Singapore. A crucial requirement in these notices is for banks to maintain a detailed register of outsourced relevant services, which must be submitted to the MAS either annually or upon request. For some banks, this involves reviewing between 500 and 2,500 contracts to determine if they qualify as outsourcing arrangements and extracting key terms for the outsourcing register.

8 To transform this process, a legal generative AI solution was configured to read, assess, and extract these terms, reducing the turnaround time from around two days per contract to a few minutes. This is only achievable with our legal experts reviewing the AI's output for accuracy and validating the assessments.

11 These case studies are based on the author's experience with the use of legal generative AI.

As a result, contracts could be processed accurately within a shorter time.

9 To ensure the effectiveness of the legal generative AI solution, both traditional and AI-augmented processes were used in parallel for the first tranche of five contracts. This approach required output to be reviewed by the legal experts to identify gaps in the AI-generated results. This assisted in pinpointing the areas for prompts to be fine-tuned as well as identifying the necessary points for human intervention in the generative-AI augmented process.

10 One of the key learnings from this case study is the importance of having legal experts involved across all stages of the work, ensuring the legal generative AI solution is configured for accuracy and comprehensiveness as well as ensuring a comprehensive human-in-the-loop review process that assesses the output for accuracy and completeness is developed.

11 This case study underscores the concept of augmentation rather than replacement, highlighting the indispensable role of legal expertise in enhancing the accuracy and reliability of AI outputs for legal work.

12 The lawyer's role is to (a) provide insights on processes, data points required, and context; (b) provide insights on accuracy of output generated; and (c) review and finalise the output.

13 A legal prompt engineer's role is to (a) break down the processes and tasks to reduce the risk of hallucination; (b) develop and continuously iterate prompts to generate output; and (c) develop human-in-the-loop quality control and quality assurance of the output.

B. Case study: legal generative AI enhancing dispute resolution

14 In dispute resolution, mediators traditionally face the labour-intensive task of reviewing extensive case documents, often spanning 500 to 1,000 pages. Over the course of which, mediators will work towards creating a chronology of events,

identifying party roles, summarising agreed and disputed facts, and drafting sample agreements when resolutions are reached.

15 To enhance this process, a suite of prompts for a legal generative AI to review and draft a summary of chronology of events, parties involved, as well as the agreed, and disputed facts for the mediators to review, was developed. This transformed the turnaround time of the drafts from days to less than an hour. This is only achievable with legal prompt engineering experts working closely with specialist mediators. One of the key learnings from this case study is the importance of developing a prompt library that can be used to generate the same quality of output across different scenarios.

16 The fine-tuned prompting for this use case ensures that the same results are achieved across multiple files and prompts. Mediators are advised to use the AI-generated output as a draft rather than the final product, meaning they still need to scan the case documents. Additionally, the legal generative AI solution provides footnotes on sources of information, making it easier for mediators to check and verify the data. This approach underscores the necessity of human oversight to maintain the accuracy and reliability of AI outputs.

17 The lawyer's role is to (a) provide insights on processes, data points required, and context; (b) provide insights on accuracy of output generated; and (c) review and finalise the output

18 The legal prompt engineer's role is to (a) break down processes, tasks, and documents to reduce risk of hallucination; (b) develop and continuously iterate prompts to generate output; and (c) develop human-in-the-loop quality control and quality assurance of output.

19 The consistent themes from the case studies highlight the crucial role of lawyers in contextualising the output to refine the prompts and meticulously reviewing the output to finalise it. While generative AI can automate routine tasks and provide valuable insights, it cannot replace the nuanced judgment and expertise of lawyers. As a result, the integration of generative

AI presents a transformative opportunity to enhance legal productivity, with lawyers continuing to play a central role in the provision of legal services.

III. Human in the loop: ethical and professional considerations

20 In recognition of the developments in generative AI and its transformational impact on the legal profession, the Singapore Courts released a Guide on the Use of Generative Artificial Intelligence Tools by Court Users[12] on 23 September 2024. The guide emphasises that while generative AI can be used to prepare court documents, users must ensure the accuracy, relevance, and appropriateness of AI-generated content, and are fully responsible for the output. It also highlights the importance of protecting intellectual property rights and confidential information, and mandates compliance with existing legal and ethical standards.

21 Singapore lawyers can effectively incorporate generative AI tools by following best practice principles of transparency and accountability. Transparency involves being open about the use of AI in legal processes and ensuring clients are fully informed of this. Accountability requires lawyers to take responsibility for AI-generated outcomes, ensuring that these outputs are independently verified, accurate, and appropriate. This includes fact-checking, proofreading, and cross-referencing AI outputs with reliable sources. By maintaining a high standard of accuracy and accountability, Singapore lawyers can ensure that AI tools enhance their practice without compromising the quality and credibility of legal work.

22 The risk of hallucination in probabilistic technologies like generative AI is not zero. To mitigate this risk, it is essential

12 Supreme Court of the Republic of Singapore, "Guide on the Use of Generative Artificial Intelligence Tools by Court Users" (Registrar's Circular No 1 of 2024) <https://www.judiciary.gov.sg/docs/default-source/circulars/2024/registrar's_circular_no_1_2024_supreme_court.pdf?sfvrsn=996ec0d1_1> (accessed 10 October 2024).

to maintain a human in the loop. The case studies bring to life this important point, illustrating the pivotal role of lawyers in reviewing and validating AI-generated outputs to ensure their accuracy and reliability. By consistently contextualising and checking AI outputs, lawyers can enhance the effectiveness of AI tools while upholding the standards of legal practice.

IV. Future-proofing your legal practice with legal generative AI

23 The legal industry is on the brink of a transformative shift, driven by the integration of legal generative AI. Lawyers who leverage these advanced technologies are poised to outperform their peers who do not. Legal generative AI can augment lawyers by providing initial drafts of analyses from extensive document collections, extracting key commercial and legal terms from numerous contracts, and summarising cases and legislation. As a result, legal generative AI-augmented lawyers can focus on more complex and strategic aspects of legal work, thereby adding greater value to their clients.

24 As generative AI becomes more prevalent in the legal industry, the importance of legal prompt engineering cannot be overstated. Legal prompt engineering involves designing and refining the inputs that guide generative AI systems to produce relevant and accurate outputs. This process is crucial for ensuring that AI-generated content meets the high standards required in legal practice. Re-defining legal processes to incorporate prompt engineering is essential for maximising the benefits of generative AI. Traditional legal workflows are often linear and time-consuming, but with generative AI, these processes can be streamlined and made more efficient. Lawyers must be trained not only in legal principles but also in the nuances of AI and prompt engineering. This dual expertise will enable them to harness the full potential of generative AI, ultimately leading to more effective and efficient legal services.

25 Generative AI's rapid advancement has also shaped the legal tech landscape. Today, there are more than 100 legal tech solutions that have integrated generative AI into their products.

The wide range of options can be confusing and overwhelming for lawyers starting their journey into this technology. Moreover, big technology companies like Microsoft and Google have introduced their own generative AI solutions, adding to the array of choices and sometimes complicating the decision-making process for law firm management. To fully capitalise on the ongoing advancements in generative AI, law firms must adopt a multi-tool strategy, selecting the most suitable tools for specific use cases and workflows. As William Gibson observed: "The future is already here – it's just not evenly distributed". The future of legal practice will be defined by the seamless integration of generative AI and human expertise.