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# Understanding Generative AI: A Primer for the Next Step in AI and Its Legal Applications

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Over the past 25 years, the legal profession has seen a significant evolution in the way technology is utilized to streamline processes and enhance efficiency. Fax machines, snail mail and desk phones are nearly extinct. They have been replaced by email, SMS communications and other digital alternatives. Traditional artificial intelligence (e.g. technology-assisted document reviews, search engine recommendations) is now commonplace. The next step in that evolution is generative artificial intelligence. This article aims to demystify generative AI and explore its applications within the legal sphere.

## **What Is Generative AI?**

Generative AI is a branch of artificial intelligence that involves machines creating content - whether it be text, images, music or other forms of data - that is meant to be indistinguishable from content created by humans. Unlike traditional AI, which operates based on predefined rules and patterns, generative AI employs techniques such as deep learning and neural networks to generate new, original content autonomously.

## **How Does Generative AI Work?**

At the heart of generative AI are neural networks, computational models inspired by the structure and function of the human brain. These networks are trained on vast amounts of data, learning to recognize patterns and relationships within the data. Generative AI utilizes two main types of neural networks:

- **Autoencoders:** These networks learn to compress input data into a lower-dimensional representation and then reconstruct the original data from this representation. Autoencoders are commonly used in tasks such as image and text generation.
- **Generative Adversarial Networks (GANs):** GANs consist of two neural networks - a generator and a discriminator - that are trained simultaneously. The generator generates synthetic data, while the discriminator evaluates whether the data is real or generated. Through adversarial training, both networks improve over time, leading to the generation of increasingly realistic content.

Read the [full article \(pg. 22-25\)](#), which originally appeared in April 2024 in an issue of the *Oregon State Bar Bulletin* to learn more about how generative AI works, applications for generative AI in the legal field and ethical considerations.

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