

THOMSON REUTERS
WHITE PAPER SERIES:
AI for the Business and Practice of Law

Demystifying Artificial Intelligence (AI)

A legal professional's 7-step guide through the noise

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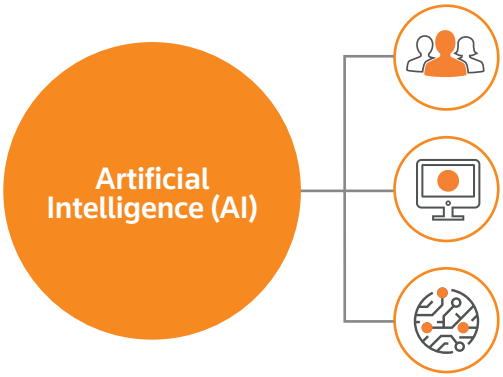
AI DEFINITIONS – TAKE YOUR PICK

When we're asked, "What is artificial intelligence?" many mental images come to mind. Perhaps it's a sassy-talking technology like Siri® from Apple®, or helpful humanoid counterparts like those depicted in *The Jetsons*. Some might even imagine sophisticated robots threatening to extinguish the human race.

(Thankfully, AI as we currently know it, offers a much more positive impact than that!)

Nowadays, there are as many definitions of AI as there are companies trying to pitch AI solutions.

Think of AI as computers performing tasks previously thought to require human intelligence. It's a bit of a moving target, however. As computers do amazing feats, we tend to get less amazed over time – and we see those things as natural components of technology.



Artificial Intelligence (or cognitive computing) is the theory and development of computer systems able to **perform tasks previously thought to require human intelligence**.

It's only called Artificial Intelligence until you understanding how it works. After that, it's **just software**.

Artificial Intelligence is **helping computers achieve extraordinary feats that truly catapult us to the future**.

AI IS NOT ONE THING

AI is not a single technology. Really, it's a number of different technologies applied in different functions through various applications.

Some examples include:
Natural language processing (NLP), which is behind many AI applications in the legal industry whose work product is, as we know, text-heavy by nature. NLP is used to translate plain-English search terms into legal searches on research platforms such as **Thomson Reuters Westlaw**™, and also to analyze language in documents to make sense of them for eDiscovery or duediligence reviews.

Logical AI/inferencing is employed to build decision trees in systems such as TurboTax®. This guides users through questionnaires resulting in legal answers or drafts of legal documents. Human expertise is built into the logical structure of these systems.

This only scratches the surface of the capabilities of AI. All of the functions and technologies identified below are starting to be used in the legal space, sometimes in combination with one another.

Functions

- Expertise Automation
- Image Recognition & Classification
- Question Answering
- Robotics
- Speech (Speech to Text, Text to Speech)
- Text Analytics (Extraction, Classification)
- Text Generation
- Translation

Technologies

- Logical AI/Inferencing
- Machine Learning
- Natural Language Processing (NLP)
- Robotics
- Speech
- Vision

AI TECHNOLOGIES ARE ALL AROUND US

AI seems abstract and futuristic, but in fact, it's everywhere. Like many new technologies, AI seems mysterious until it becomes ubiquitous and we don't really think about it anymore. It becomes part of our fabric.

The examples below show everyday examples of AI – whether it's Amazon's talking machine (Alexa), or Spotify building you a recommended music playlist based on your listening habits. Everywhere we turn, machines are starting to act like human advisors, making recommendations and suggesting alternatives. With tools like translation software and data-to-text generation tools improving every day, machines are rapidly expanding the ways that natural language processing serves our needs.

Much of this is invisible. You'd be surprised to know how much of the perfectly readable news you consume online or in print about sports or financial reports, for example, is actually generated by machines and not human journalists.

Examples:

Amazon Echo®	Google Translate™	Spotify® Discover Weekly	Quill™ (Narrative Science)	Chatbots
Speech recognition technology that allows you to talk to your machines	Language translation by machine (deep neural networks are rapidly improving this service)	Based on your usage and traffic analysis, this music streaming service recommends new songs and artists you might like	Text generation that takes structured data and turns it into narrative stories	Provide real-time, contextually specific answers to questions in a dialog format

HOW THE LEGAL INDUSTRY USES ARTIFICIAL INTELLIGENCE TODAY

Even in the legal industry, AI appears in lawyers' workflows every day – although perhaps not as obviously as in our personal lives.

The need for it is abundantly clear (and reflected in the budgets) at law firms. While overhead expenses have increased an average of 2.1% on a rolling 12-month basis, technology was one of the fastest-growing expense categories, increasing by 3.9% over that time. And it doesn't stop there. Law firm tech budgets are increasing by 53% according to the 2016 ILTA/InsideLegal Technology Purchasing Survey.

What's helpful for our professional lives is that we're starting to leverage AI across a broad range of applications: legal research, litigation strategy, eDiscovery, self-help online legal services, dispute-resolution models, and contract review and analysis.

As the examples below show, AI tends to be applicable in cases where there are standard and often recurring questions that need to be answered, paired with significant data sets likely to hold those answers.

The illustrations below provide a (somewhat simplified) view of how AI technology applies in each case.

Legal research

"What is the statute of limitations on X in state Y?"

We can reduce some legal research questions to fairly well-defined questions with specific answers. **Legal research platforms** have added these question-answering functions to their capabilities where the data supports it. This is a way of leveraging AI to improve research outcomes. Instead of retrieving a list of documents that might answer the question, these systems are returning more concrete answer sets that the data supports.

Westlaw® Answers is an example of this approach. It can provide specific answers to common, well-defined types of legal questions – about statutes of limitations, for instance, or the elements of specific causes of action. And it supports those answers with links to authoritative court decisions and sources. Such a tool works wonders for bolstering confidence in your duties.

Litigation strategy

"What are my odds of success with this motion before this judge?"

Court dockets contain data on events and outcomes in litigation – every filing, motion, and ruling is recorded there. Before advanced analytics and AI came along, predicting how a judge might rule on a motion, for example, typically relied on the personal or institutional experience of a lawyer or firm.

Now, AI allows much more comprehensive (and likely accurate) predictions based on larger data sets. This is courtesy of AI's ability to wrangle knowledge beyond the scope of one lawyer's experience.

One of the challenges in this space is that court dockets data requires a great deal of cleanup. For example, there are differences and inconsistencies from court to court and even within the same court. Cleaning up that data is a big part of the value that legal publishers such as Thomson Reuters bring to the table. The old rule of "garbage in, garbage out" is especially important in AI, where the underlying data can be invisible from the end user. Thus, a prerequisite for AI applications is trusted, processed data that's been optimized by people with legal domain expertise.

eDiscovery

"Which of these two million documents are likely to be responsive to the discovery request?"

eDiscovery is the field of legal practice where AI techniques have gained the most traction. Because business operations are going digital across the board, today's organizations generate exponentially growing volumes of data – most of it unstructured or semi-structured data in the form of email, written memoranda and documents, spreadsheets, calendars, and so on.

The volume and variety of that data make complete human review almost impossible in large litigation cases – not to mention grueling and unappealing. Luckily, machines can pick up the slack, and machine learning can help "teach" document-review software how to predict whether a given document is likely to be responsive to a given request. And, it often can do so more accurately and cheaply than by human review.

Still, human expertise is indispensable for the phases of the eDiscovery process that require judgment and experience, where trained lawyers can add the most value.

Online legal services

Self-service help with legal questions: ***"Is this person an employee or a contractor?"***

Certain legal questions recur frequently. Paired with sufficiently well-defined data sources, they can be embedded in client-facing automated systems that deliver answers.

Such services are based on so-called "expert systems," which embed legal knowledge into formal decision trees that can include calculations, factor weighting, and other techniques. Clients respond to a series of questions about their fact situation, and the system responds with a definitive answer or, where appropriate, suggests further consultation with a human lawyer.

You see this online legal service being applied in fields as complex as data privacy regulations – or as simple as consumer-facing chatbots used to challenge parking tickets. Many law firms are investing in this type of client-facing AI, but it's also being employed in services offered by other types of organizations: chatbot providers, legal services organizations, courts, and other government entities.

Contract review

"What risks or opportunities lie in these thousands of contracts?"

Another application where lawyers need to conduct large-scale review of document sets is in contract analysis, particularly for due diligence reviews in large mergers and acquisitions. Lawyers analyze the content of large volumes of contracts that an acquisition target holds in order to find the total contract value, hidden risks, and more.

Machine learning is proving to be very useful in these contexts. Contracts are "semi-structured"; they're text-based documents, not rows and columns of data, but they do share certain common clauses and terms that help computers identify specific clauses and potential outliers. Some products also benchmark certain contract terms against publicly available contract databases in order to determine whether a particular provision is "market."

7 LESSONS FOR IMPLEMENTING AI IN THE LEGAL SPACE

There is no turning back. As the examples show, AI is on its way into the legal services industry. How should the individual practitioner, government attorney, corporate counsel, or law firm partner think about AI?

As we've shown, change has arrived already, and many believe that AI technologies are the beginning of a Fourth Industrial Revolution, building on previous revolutions in mechanization of production, mass production, and automation.

What steps can you take today to meet an AI-enabled future? At Thomson Reuters, we are working with our customers to keep up with changes as they are introduced into the legal space, even as we recognize that we've only begun the revolution.

We've identified seven key lessons from the industry's current experience with AI that will help practitioners and leaders in legal services organizations keep on top of developments.

1. Data first. Software second.

Don't set out to "do AI." It's better to start with the problems you are trying to solve, identify the data sets where the answers might be, and then determine whether AI technologies might have a role in solving them. Every process in an organization – whether a law firm, government agency, or corporation – generates data. It could be a business process related to marketing, billing, customer relations, or legal processes; the same idea applies. But you might not know where that data is, or what shape it's in.

Many AI applications begin simply with the process of getting data sets in order, whether it's electronic billing data or case and matter management data from a matter management system. All of these sources might potentially be fodder for some of the AI applications described above – but the #1 job is determining the state of the data itself. It might require some "data hygiene" to clean up existing data, and you may need new processes to ensure that future data-generation activities yield clean and reliable data.

Simply understanding the data on which your organization sits is often the most important first step before considering how you might apply AI to it. And, partnering with companies like Thomson Reuters will leverage decades of rich domain expertise in the public legal data that drives many AI applications.

2. Remember, AI is not one thing.

There's no big bang or single "killer" app in legal AI. As the examples above show, AI has applications in many corners of the industry, and each application might use a different AI-related technology. It's important to understand which tool is right for your problem, and the best first step is to define what those problems are rather than chasing after the next big thing promoted by vendors or competitors.

3. It's only AI until you understand it – then it's just software.

It's fine to be in awe of what computers can do today – talking to an Amazon Echo or Siri on your iPhone® is pretty amazing, after all! But as we all become accustomed to the capabilities of these technologies, we should also see AI applications as another tool in the IT arsenal that lawyers have at their disposal today.

In the end, it doesn't matter whether the technology you're using is AI or not, as long as it solves your business problem at hand.

4. AI is useful in the business of law and the practice of law.

Much of the hype about AI focuses on the extent to which AI can or cannot take over the "lawyering" that lawyers do. It's pretty clear that many of the data-intensive tasks that lawyers do in the course of their work can be enhanced by using AI technologies.

But it's important not to lose sight of the business side of legal practice, where there is also low-hanging fruit for new technologies. Legal organizations execute numerous business processes such as billing, pricing, and marketing, and most of those processes involve numbers and data (prices, margins, and expenses) – all of which can be analyzed and managed with the help of AI technologies. We expect that most of the gains from AI that law firms and in-house legal departments will see in the near term will come from optimizing those operational functions, rather than detracting from or replacing legal work.

5. AI is not a replacement for human expertise. It's an enhancement.

Data sets can be incomplete or have errors. And by their very nature, AI technologies often involve predictions with varying degrees of certainty. Lawyers often see anything short of 100% reliable performance as substandard. They tend to apply this standard to themselves, because they are often dealing with high-risk matters and put their reputations on the line with each one.

Trusting a machine to make predictions or suggest likely outcomes in the face of uncertainty or based on potentially inaccurate data seems too risky to many lawyers. AI seems like a black box with no accountability.

However, lawyers are often their own type of black box. They generate answers, predictions, and advice based on their own, sometimes undocumented, experience. And they sometimes make mistakes. The point is that the lawyer's experience and judgment can only be enhanced by machine-generated answers or predictions. Humans are still an invaluable part of the process.

In short, it's not a question of whether the machine is more accurate than humans, but whether humans assisted by machines are more accurate than humans alone.

6. Change in management, communication, and other "soft stuff" is paramount.

AI is no different than any technology. Adopting a technology (if it's to have a significant positive effect) requires changes to routines and workflows. That human side of technology change is disruptive and likely to meet some resistance and inertia. This is not turnkey technology that can simply be installed. Humans are required to instruct the technology, and human processes and workflows will need to be adjusted to incorporate AI into the business. The capacity for change management doesn't just happen; it is a "muscle" that organizations must develop.

Aside from changes to established workflows, the implementation of advanced technology will also likely entail working with new types of professionals: data analysts, process engineers, pricing specialists, and other allied professionals. The ability of organizations to integrate those new professional roles into legal practices – and to recognize and compensate them properly – is an industry-wide challenge.

7. Clients are a resource.

Finally, AI can nurture greater collaboration between clients and law firms. Client needs will drive adoption of many AI applications. Often, they possess the data needed to effectively build out good AI solutions, and they certainly will have ideas about the optimal outcomes.

AI technologies produce the best results when they are not developed in a vacuum. Instead, it's a chance for lawyers, clients, and the organizations they work for to integrate operations for mutual benefit. Like any technology, the magic happens when it addresses human needs and leverages human expertise.

NO TIME TO PANIC, NO TIME TO SIT STILL

At Thomson Reuters, we hear firsthand from clients who are moving ahead with new AI technologies, and others who are looking for guidance and support as they navigate the new normal.

For over 100 years, we've been at the forefront of helping the legal industry to operate more effectively.

Combining intelligence, technology, and human expertise, Thomson Reuters unmatched legal know-how has always enabled our customers to confront real-world issues with the most trusted real-world tools and solutions.

No one is better equipped than Thomson Reuters to help legal professionals drive meaningful innovation. Smartly injecting the technical horsepower of AI into our industry-leading legal solutions simply means that the best is getting better.

The accuracy and speed of **legal research** become faster and even more comprehensive. Topical searches become smarter. Analytics become more human. Workflow becomes more intuitive. The legal industry becomes more productive.

The pace and hype of technology innovation are dizzying. The ability to filter that innovation through the lens of long-standing industry and institutional expertise is what separates human intelligence from AI. It's what enables Thomson Reuters to offer legal professionals not only new technology, but trusted answers.

ABOUT THE SERIES: AI FOR THE BUSINESS AND PRACTICE OF LAW

The legal profession is facing a new inflection point – the advent of cognitive computing and the challenge of properly applying it in a practial way to solve real-world problems. This whitepaper series will help legal professionals like you understand the impact and opportunities of this revolutionary technology on the business and practice of law, and how to use it to deliver your best work, faster and more accurately than ever.

For more topics in the series, visit: **legalsolutions.com/ai**

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