

Demystifying Artificial Intelligence (AI)

A tax professional's guide to cut through the noise



White Paper



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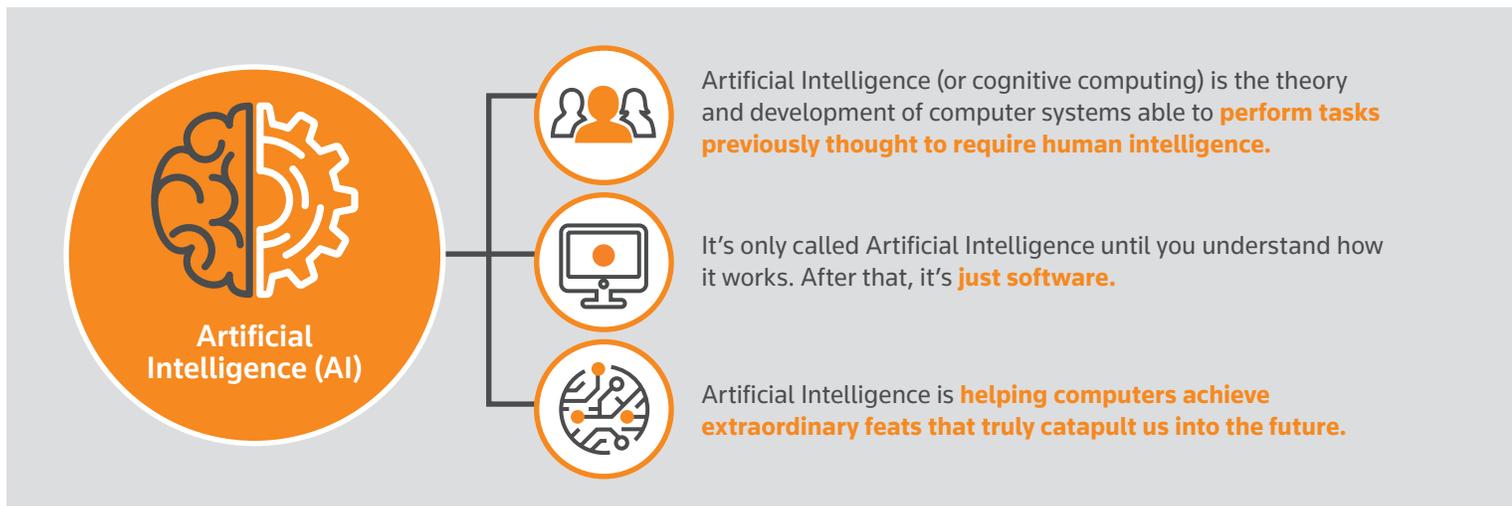
How should we define AI?

When it comes to tax and artificial intelligence (AI), 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 that threaten 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. So, how do tax and accounting firms know how to incorporate artificial intelligence? When is the right time to use tax AI?

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 start to see those things as natural components of technology.



AI is not one thing

AI is not a single technology. It's really many different technologies applied in different functions through various applications.

Some examples include:

- Machine learning, as more people use a program, the more effective and "smarter" it becomes. By aggregating patterns in search habits, for example, Checkpoint Edge™ can more accurately predict the exact information a user looks for over time, allowing them to find the right answers faster. For example, with the changes brought about from the recent Tax Cuts and Jobs Act (TCJA), tax professionals need to understand how changes in the law affect their clients. As more and more users research specific topics on Checkpoint Edge, the program can see what information users are referencing the most to find answers, and then put that page higher up in the search query for other users in the future.
- Logical AI/inferencing is employed to build decision trees in systems such as TurboTax®. This process guides users through questionnaires resulting in tax answers or drafts of tax documents. Human expertise is built into the logical structure of these systems.

These examples only scratch the surface of the capabilities of AI. All the functions and technologies identified below are starting to be used in the tax and accounting space, sometimes in combination with one another.



Technologies

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



Functions

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



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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 (NLP) serves our needs.

Much of these processes are 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®

Speech recognition technology that allows you to talk to your machines

Google Translate™

Language translation by machine (deep neural networks are rapidly improving this service)

Spotify® Discover Weekly

Based on your usage and traffic analysis, this music streaming service recommends new songs and artists you might like

Quill™ (Narrative Science)

Text generation that takes structured data and turns it into narrative stories

Chatbots

Provide real-time, contextually specific answers to questions in a dialog format



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.

How the tax and accounting industry uses artificial intelligence today

Even in the tax and accounting industry, AI appears in tax professionals' 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 tax and accounting firms. While overhead expenses per person have increased an average of 4.3% from 2017 to 2018, technology was one of the fastest-growing expense categories, increasing by an average of 0.33% over that time according to the 2018 Rosenberg Survey.¹

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.

An example of a tax and accounting research question such as, "How is bonus depreciation different from this section 179 expensing election?" provides a (somewhat simplified) view of how AI technology could apply.

We can reduce some tax and accounting research questions to well-defined questions with specific answers. Tax and accounting 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.

Checkpoint Edge is an example of this approach. It can provide specific answers to common, well-defined types of tax questions — about tax reform, for instance. And it supports those answers with links to authoritative tax law explanations and sources. Such a tool works wonders for bolstering confidence in your duties.

7 lessons for implementing AI in the tax and accounting space

There is no turning back. As the examples show, AI is on its way into the tax and accounting services industry. How should the sole practitioner or tax and accounting 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 tax and accounting 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 tax and accounting services firms 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 tax and accounting firm, government agency, or corporation — generates data. It could be a business process related to marketing, billing, customer relations, or tax 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 client data. All 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 public tax data that drives many AI applications.

¹ 2018 Rosenberg Survey, 20th Annual Edition



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.

2. Remember, AI is not one thing

There's no big bang or single "killer" app in tax and accounting 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 tax and accounting professionals 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 and practice of accounting

Much of the hype about AI focuses on the extent to which AI can or cannot take over the "accounting" that accountants do. It's pretty clear that many of the data-intensive tasks that tax and accounting professionals 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 the accounting practice, where there is also low-hanging fruit for new technologies. Tax and accounting firms 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 tax and accounting firms and in-house accounting departments will see in the near term will come from optimizing those operational functions, rather than detracting from or replacing tax and accounting 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. Tax professionals 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 for many tax professionals. AI seems like a black box with no accountability.

However, tax professionals 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 tax professionals 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 tax and accounting practices — and to recognize and compensate them properly — is an industry-wide challenge.



The ability to filter that innovation through the lens of long-standing industry and institutional expertise is what separates human intelligence from AI.

7. Clients are a resource

Finally, AI can nurture greater collaboration between clients and tax and accounting 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 tax professionals, 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.

Combining intelligence, technology, and human expertise, Thomson Reuters offers unmatched tax and accounting know-how that always enables 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 tax professionals drive meaningful innovation. Smartly injecting the technical horsepower of AI into our industry-leading tax and accounting solutions simply means that the best is getting better.

The accuracy and speed of tax research continues to build speed and is even more comprehensive. Topical searches become smarter. Analytics become more human. Workflow becomes more intuitive. The tax and accounting 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 tax professionals not only new technology, but trusted answers.

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Checkpoint Edge™

Checkpoint Edge is the next generation of our Checkpoint™ research and guidance tool for tax and accounting professionals. It delivers the latest in artificial intelligence, cognitive computing, and machine learning technologies, combined with the tax and accounting expertise of our editorial staff. It enables you to find fast, accurate answers with a more fluid and intuitive user experience. Learn more at tax.tr.com/en/checkpoint/edge.

The intelligence, technology
and human expertise you need
to find trusted answers.



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