Foresight: The CPA Podcast

Episode 4: What is AI's role in accounting?

Jean-Sébastien Marier: Welcome to the Foresight podcast, a CPA Canada podcast that explores the future of the accounting profession. I'm your host, Jean-Sébastien Marier. In each episode of this series, we'll try to rethink what CPAs do, how they do it, and the impact of their role around the world. This podcast is part of CPA Canada's Foresight project, which aims to provide a new strategic vision for the accounting profession in Canada. Whether you are an accountant or not, your voice and ideas will help redefine the future of the profession.

Big data, algorithms, machine learning, these are terms we hear more and more often. In this first episode in French, we will focus on artificial intelligence in the context of the accounting profession. But what exactly is artificial intelligence, and how does it affect CPAs? I put the question to Marc-André Paquette, Director of Transformation of the Profession and Special Projects at the Ordre des CPA du Québec.

Marc-André Paquette: The term is liberally applied. It is often overused, or often understood to be something very narrow. However, artificial intelligence is evolving, constantly evolving. By definition, it's evolving, so it's changing quickly. What do we mean by artificial intelligence? Many people think that it is only, or mainly, making a machine perform a task. Yet it is a continuous process, by which a machine is taught how to perform tasks that usually require human intelligence.

For example, in the accounting field, we're looking at machines that will be able to analyze data, machines that will be able to identify data that stands out. The reality is that before, it was humans who had to perform these tasks, but now there are machines, there are systems that can do it, often much more efficiently.

In the accounting field, it is used... Yes, it is already used in fact. Is it used on a large scale? Definitely not, that's for sure. We're going to use a lot of solutions that automate tasks. That's one way of looking at artificial intelligence, but artificial intelligence where you train a system that learns by itself, we are definitely not there yet, at least not on a widespread basis. Some organizations have put resources into exploring projects, exploring ways to use artificial intelligence, not within a very well-defined framework mind you: they'll explore, have pilot projects, etc. These are the organizations that today know a little better what AI can do for them.

Clearly, we are starting to see more defined uses. I was saying this a little earlier, but auditors have identified that artificial intelligence can help them analyze a very large batch of data in a very short time. This means that if a client or the people with whom they interact have quality data, quality digital data, they are able to use a system based on artificial intelligence to quickly process a large batch of data. Then, the time, the human effort, can be devoted only to the problems the machines will have identified.

I believe that before thinking about technology, professionals can already start to reflect on processes that could be optimized. Because ultimately, that's technology: it optimizes, it supports a process that is already in place within organizations. So, identifying processes that are not efficient, that are not effective, this is a management job, a job for managers. We don't even need to think about the technology—we can start by identifying processes that should be optimized, either because they are critical or because they are really not efficient.

The second step would be to understand what the AI could do. What would systems, or even automation, be able to do? Primarily, AI is able to recognize interactions between data, so finding patterns, finding predictions, or being able to make predictions based on trends. Really tasks that currently rely on humans, but which call on trends, on patterns: clearly, artificial intelligence will be able to really improve the experience or improve the analysis with a machine, based on scenarios.

If the process that you're looking at, the process that is critical within your organization, is based on several possible scenarios (option 1, option 2, option 3...), artificial intelligence can create many more scenarios and, above all, integrate several types of data into these various scenarios, much faster than a human can. So, already, identifying the critical processes to optimize, also knowing the opportunities that artificial intelligence can provide, this will then allow you to establish an action plan that will likely prioritize the most critical processes, or those that need the most attention, those that haven't been revised for a long time, etc.

But I really think the key, before thinking about the technology or the tool as such, is to take stock of current processes because, currently, on the market, we hear a lot of talk about technology. Artificial intelligence is a buzzword and it's not necessarily desirable for some organizations. The reality is, if we haven't used or optimized the tools we already have in place, what's the point of going for an AI solution? I think there are steps to be taken before considering a cutting-edge tool like this.

Jean-Sébastien Marier: That was Marc-André Paquette. He is the Director of Transformation of the Profession and Special Projects at the Ordre des CPA du Québec.

To prepare ourselves for the increasingly important role that artificial intelligence is very likely to occupy, we must take an interest not only in its technological aspects, but also in its ethical, professional and social dimensions. Here now to discuss this is Mario Malouin. He is a member of CPA Quebec and CPA Ontario. He is also a visiting professor of accounting at the Université du Québec en Outaouais. Mario, thank you for being with us today.

Mario Malouin: Hi Jean-Sébastien, how are you?

Jean-Sébastien Marier: I'm good thank you, and you?

Mario Malouin: I'm doing well, thank you.

Jean-Sébastien Marier: My first question is really one of contextualization: we hear a lot about artificial intelligence, data, as I mentioned in the introduction, but in the context of the accounting profession, what exactly do we mean by "artificial intelligence"?

Mario Malouin: That's a good question, Jean-Sébastien. In fact, there is no uniform, unanimous, universal definition of the term "artificial intelligence". What is interesting is that it was Voltaire who said: "Define your terms, you will permit me again to say, or we will never understand one another." So, is artificial intelligence artificial intelligence? Amplified intelligence? Assisted intelligence? Augmented intelligence? I like to use a very simple definition, and rather than talking about artificial intelligence, I say "intelligent agents". It's a term that is used in academia and the sciences.

So what is an intelligent agent? It's an agent that will act intelligently. As there is no definition of the term "intelligence", we have no definition of the term "artificial intelligence", but there are four important components to it, if we simplify.

What we're trying to do here, when developing intelligent agents, is we want them to act in an appropriate way, so we have to define objectives. First component. The second thing is that these agents have to adapt to the evolving environment in which they operate. They are going to perform a task, and that environment is part of the agent's development. The third component is that these agents have to learn. Learn from their experience. The fourth component is that these agents must make appropriate choices, given their limitations.

So basically, these four components allow us to understand what AI is and how it works.

Jean-Sébastien Marier: And in the context of the accounting profession more specifically, what are perhaps some concrete examples of the use of AI?

Mario Malouin: It's interesting to see how the professions are changing today. The way I look at AI... Today, there is an important aspect that is being done with AI, it is predictive. We use artificial intelligence to make a lot of predictions. Then, if we take the concept of AI... Basically, AI is there to perform a specific task and it comes down to the four components I mentioned earlier. Once the task to be performed has been defined, it can be broken down into four components. I'm going to use simple terms, not mathematical ones.

First of all, we have the data. We have to use our judgment in many cases to perform a task. Sometimes we also have to do prediction and, fourth component, we will perform an action to accomplish the task. When we take these four components, we are able to take a step back and say to ourselves: "What could AI do, for example, in the accounting profession?" We have several examples. Today we can use AI to make bank reconciliations: we can program intelligent agents to match documents to carry out this task.

AI can be used to make payments, or to reconcile payments that are made or received by the company. I like to look at AI under the lens of tasks, because there are a lot of reports or studies coming out that say: "AI is going to replace a lot of jobs, a lot of jobs will be lost." But a lot of these studies that have been done in the last seven, eight, or nine years take what I call a very high "helicopter approach". They try to estimate the impact of AI on employment, but we must not forget that a job is a sum of tasks, and AI today is far from being at a level where it can accomplish a lot of tasks with precision, precisely because of the four components of an intelligent agent I was talking about earlier.

Jean-Sébastien Marier: I really appreciate the points you just mentioned, in particular the idea of monitoring the data and using intelligent agents. We often think of artificial intelligence as machines that learn by themselves. These unsupervised learning models exist, but in the context of the accounting profession, in the immediate future, we are mainly talking about models that assist humans and not models that work completely independently, if I understand correctly.

Mario Malouin: Absolutely. If you take a step back and look at what happens when you try to develop algorithms—or an intelligent agent, I'm going to simplify and consider the terms as synonyms—there are three important things. If you look at the definition, I said "operating in an environment". This environment has certain characteristics, and I'm going to make two very simple comparisons. We must try to understand this environment when we develop the algorithm, and the environment can be partially observable or totally observable.

This environment in which the agent operates, it can be an environment where there is a single agent or several agents, humans, several algorithms. This environment can be what we call deterministic or stochastic; it can be episodic or sequential; it can be dynamic or static.

I'll make the analogy here. Reconciling a bank account: the environment is quite simple. It's not an evolving environment, it's not an environment where there are multiple agents. It's an environment that is completely observable: I have two documents. So developing the intelligent agent is much easier. The predictive part of the task equation is almost eliminated. If we simplify the task which is data, judgment, action and prediction, there is no prediction in this task.

Let's take the self-driving car. The challenge we have is an environment that is the most complex if we look at the components of the environment. It is partially observable, it is dynamic, it can be sequential, it can be stochastic, so the probability component is considerable, and that's why developing a large number of algorithms that will be able to act like humans is complicated. To come back to your point, this is where we need to take a step back and be careful when we say "AI will replace humans". We are far from that. I think there's still a lot of work to be done.

Jean-Sébastien Marier: So we're talking about the future of AI, but maybe before we look more concretely at what we need to do now to prepare for that future, could you give us a little history, a historical overview of AI? Because it's being talked about more and more, but it's not necessarily completely new. In the last 20 or 25 years, how have big data, AI, and these types of technologies developed within the accounting profession?

Mario Malouin: If you step back and look at history, AI is not new. We can go back to the 1900s, when researchers were making discoveries about how we can try to mimic the functioning of the human brain. But a turning point in the history of AI was the Dartmouth conference in 1956, where more than 20 researchers got together, and there were advances in the school of thought on algorithm development. That was a turning point in the history of AI, which has led us today to propel what is called machine learning, which took off following that conference.

Since then, what's interesting is that we're seeing a phenomenon where, at the medical level as well as at the scientific and technological level, we're seeing a kind of alignment. We're trying, and we hear this a lot in the media, with machine learning where we want to replicate the way the human brain works. We see a lot of work being done in parallel between understanding the human brain and developing algorithms in the form of machine learning.

Jean-Sébastien Marier: I think that segues nicely to my next question. We often focus on the technical aspect of AI, but as you alluded to, there are these human, professional and ethical aspects as well. When we talk specifically about the role of the accounting profession, what are some of the ethical and social issues that we're facing right now with AI, and may well face in the future as well?

Mario Malouin: I think CPAs and the profession will have an important role to play in the years to come. There are some critical issues that we face with AI. CPA Canada has recently spoken out on the importance of having a framework in terms of corporate social responsibility. Whether we use, develop or consume AI, there are impacts today. Let's take a few examples: the basis of AI is the use of equipment. To produce this equipment, the extraction industries are used extensively. Lithium is an example.

AI runs in part on smartphones and computers, which consume energy and have batteries that are produced from or contain lithium, and these extraction industries pollute enormously.

Another example is ghost work. There is a very interesting book called Ghost Work that was written on this subject several years ago. What did we do to develop the algorithms? We employed people who were paid probably much less than they should have been to enhance the knowledge of these algorithms. On the ethical side, today, many countries are beginning to understand the impact of AI on humans and the role government should play in regulating AI.

Recently, the European Union came out with a draft law on artificial intelligence. The United States has done the same. They are looking at how to regulate... In fact, the challenge of innovation and technology is not the technology itself, it's what humans do with the technology. You can do good things, but you can also do bad things. I think CPAs, eventually, will have an important role to play. One of the important roles of CPAs in an audit is to ensure compliance with laws and regulations.

As countries issue regulations on the use or development of responsible AI, I can easily see a role for CPA auditors to ensure that compliance.

Jean-Sébastien Marier: If I understand correctly, when it comes to models and compliance, we must ensure that the very data we use to train the models respects privacy laws, that we do not use data that discriminates based on people's gender or sexual orientation when we work with that data.

Mario Malouin: Yes, that's a very good point, Jean-Sébastien. This is an important issue. We must not forget that humans have roughly 188 biases, which we don't even realize we have. These biases come from, or can be divided into, four broad categories, from retention to collection of information, to its interpretation. Humans, when we develop algorithms, will be influenced by these biases. We are sometimes unaware of these biases, and that's why, more and more, we're going to support the idea of having multidisciplinary teams develop algorithms.

As I said earlier, when I develop an algorithm, I am going to develop it in an environment and that environment is going to be theoretical. When I put it into the real world, have I taken into

consideration the world in which it will operate? Today, it is not only that the bias manifests itself in different ways, but we have to be able to assess whether this bias has a huge impact. This is where perhaps CPAs, with other professions, in multidisciplinary teams, can ensure that this risk is minimized. The risk will always be there, but we want to minimize the risk and also the consequences, if the risk materializes.

Jean-Sébastien Marier: So AI has been around for quite some time. It is increasingly present. What can the professional accountants listening to us do to better prepare for a future where artificial intelligence may well be more and more present? There are people who are already using AI, but let's put the question this way: “This is new to me, what can I do to prepare? To be ready for a transition to using machine learning in, say, 5 or 10 years?”

Mario Malouin: There are two angles here. The CPA auditor or the CPA practitioner, who work in industry or in government. I think it’s important to begin to understand, without becoming a programmer, how things work, the rationale. How does AI work? What can AI do? How might AI impact me as an auditor, or as a practitioner in industry or government, in the finance function, for example? Continuing education is key. Clearly, more and more, with all these technologies, continuing education is important if we want to remain relevant as a profession. As a member of that profession, it’s important.

Now, once again, the question you raise raises another question. A number of people are wondering: “I’d like to use AI, how do I start? What do I do? I’m a practitioner, I’m in industry, I hear about AI, but how does it impact my business, me as a manager?” It’s important to remember that the CPA in industry is often a VP Finance or a Controller who is expected to play a strategic role. This strategic role will have an impact on the company’s strategy, on the control environment to be put in place, and so you have to take this role and ask yourself: “How can AI impact the business?”

We can see three levels. First, AI can be deployed in a context of effectiveness and efficiency of our control environment. This is more a question of management, of cost reductions. At some point, we may say: “When I’m past that phase, I want to capitalize more on AI at another level, which is revenue generation. How can I capitalize on AI to impact my strategy execution?” And at a third level, which is much more advanced: “Will AI have a longer-term impact on my business strategy?” We are gradually seeing sectors being disrupted by artificial intelligence. Not just intelligence, but data, collection, storage of data in the cloud, etc.

Jean-Sébastien Marier: I sense you are very enthusiastic about AI, but with some caveats. I’m going to ask you to get out your crystal ball: where might AI take us in the future, in general, but also more specifically in relation to the accounting profession?

Mario Malouin: That's a good question. I don't think we're in a world where there's a revolution, it's not going to change overnight. I think it's an evolving world, like any technology. A technology has a life cycle, like any product, and today, in my opinion, we are in the early phase of this life cycle, in the growth phase. The use of this technology is growing as we learn to understand it. And AI is being standardized as we learn to understand its uses.

The government cannot standardize too quickly because it will slow down innovation, but the challenge is that if we do not standardize in a timely manner, there may be negative consequences. So there is a kind of amalgamation that is taking place, an alignment between use, standardization, and the responsibility of companies and users. I believe that our profession will evolve like many others. I believe that we will gradually be able to use this technology like many other technologies, just like we did with computers or other types of software that many professions have adopted over time.

I think the CPA of the future will have to work more on developing his or her judgment, and if I put the CPA auditor hat on, I think the CPA auditor will have to work and find ways to add more value to what we do. The profession is increasingly being criticized, just look to England, for example, for the way it ensures audit quality. With what's happening today in England, I believe this is a great wake-up call for our profession. There is still talk of dismantling the big firms because of poor audit quality.

I believe that AI can help increase the quality of an audit, allow the auditor to step back, use their judgment and have increased assurance that they have done a good job.

Yes, the cohabitation between humans and machines will happen gradually. The more machines have amplified abilities compared to the human brain—for example, they are better than humans at predicting trends—the more humans can take this result, bring it to another level with their professional judgment and connect the dots, as we say. What AI doesn't do today is contextualize.

Let's look again at the type of environment in which we operate: is it observable, dynamic? Humans do it, but we don't know how we do it. We contextualize, we put things in a three-dimensional world, and we don't yet understand how the brain can do that.

Jean-Sébastien Marier: On this future-oriented note, I thank you very much for taking the time to explain all this to us today.

Mario Malouin: It's a pleasure, and see you next time, Jean-Sébastien.

Jean-Sébastien Marier: Mario Malouin is a member of CPA Quebec and CPA Ontario. He is also a visiting professor of accounting at the Université du Québec en Outaouais. Foresight is a podcast

produced by CPA Canada. For more information on the Foresight project, visit foresight@cpacanada.ca. This is Jean-Sébastien Marier, thank you for listening. Until next time.