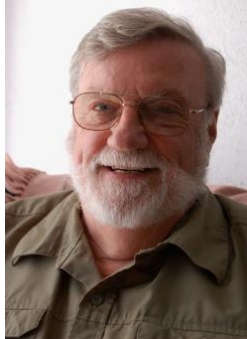


Artificial Intelligence May Not Replace Accountants But It's Sure Going to Change Us

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Artificial Intelligence has been entering the world of accountants and other financial professionals for some time – usually at a basic level, such as selecting accounts to post, helping with data searches, and offering suggestions for problem-solving purposes.

But, now, we are on the verge of a new wave of AI, with new technologies that have not been used before.

Artificial Intelligence Is Our Friend

According to IT consultants Gartner Inc., there are several levels of AI – Reactor, Categorizer, Responder, Learner and Creator.¹

The reactor level involves simply automating existing processes, e.g., filling orders. This is the most basic level. The categorizer level, as the name implies, is AI that can identify categories of transactions and apply algorithms to enhance related decisions.

A good example of responders is driverless cars. That level of AI can identify and react to a number of particular situations. This is quite a sophisticated level of AI, which raises the issue that one of the considerations in implementing AI is the risk appetite of the organization, or its risk appetite in particular interactions, some being more sensitive or critical than others.

Learner levels can learn from experience and then use that experience to augment future decisions. One example of a learner level application is medical diagnosis – obviously a critical application. A system at the creator level can create its own applications.

The prospect of more powerful AI systems entering the world of accountants has fed a concern that accountants may be replaced. Both CPA Canada and the Institute of Chartered Accountants in England and Wales have released reports that explore this issue.² Both books make similar points – that accountants need to adapt to AI, that AI will not replace accountants and that AI will take over much routine work and make it possible for accountants to focus on more complex and challenging tasks.

Many organizations are now automating their processes using smart bots that can monitor an activity, learn how the processes work and determine which ones should be automated. For example, they can follow the work of an insurance representative, track the interactions with

customers and potential customers, including the reactions of the people in different scenarios, and learn from their experiences. In other words, the bots use machine learning, a concept that is not new but is in process of becoming more common and more powerful.

The idea, again, is to reduce repetitive, manual tasks to leave more time for the more interesting and important relationship-enhancing work. The human/technology interaction is referred to as orchestration and the objective is to optimize it.³

The Need for Training

Clearly there is a need for training of personnel. “The biggest pain point that emerged from Gartner’s 2018 CIO survey was the lack of specialized skills in AI, with 47% of Chief Information Officers (CIOs) reporting that they needed new skills for AI projects. As such, talent acquisition is likely to be one of the biggest barriers to AI adoption going forward.”⁴

AI is based on large volumes of data and various algorithms. The data can be used to "train" the algorithms. To do so, the data need to be not only voluminous, but clear of errors and bias. As for the algorithms, they often start out as generalities, biased by social and economic norms that may not apply in a particular application. So the training is needed to be able to evaluate the algorithms and allow them to be adapted to reality. Also, training is needed to enable the AI to adapt to changing circumstances. Of course, the data must fairly reflect those changes, which again puts a large burden on data quality.

Humans and AI Orchestration

As AI usage grows, humans will need to work more closely with AI and even compete with it. Consequently, the human/AI interface will become very important. At the basic level, that interface is at the traditional computer/human level. As robotics capabilities grow, however, the interface will become more like inter-human interaction. This will involve robots working side by side with humans – doing reports, answering correspondence, attending meetings, and making decisions.

There are psychological implications: how will a human feel when his/her promotion is given to a robot? Or when that person must report to a robot. If robots become part of the regular workforce, will they have rights? What rights would they have? Already the issue has been raised of whether robots have a gender. Eventually, humans will need to consider having an AI interface physically installed to enhance mental capabilities. This will be necessary in order to compete. AI implants are already available and being used to help people perform various tasks. As humans work more closely with AI designed to augment their own capabilities, those human capabilities could be overcome by the technology. This will raise questions as to responsibility for decisions and actions.



AI is moving ahead so quickly that our traditional social institutions may not be able to keep up. AI promises to be pervasive within just a few years. And there is a growing recognition of the necessity of AI for competitive advantage. When you look at how quickly Google has moved into our fact-finding space, and how much we rely on it, we can get some sense as to how quickly AI can move.

Companies, particularly retail businesses, have been making greater use of Artificial Intelligence to enhance their customer service. Customers can't always go totally online, so it is in the companies' interests to enhance the customer experience by improving convenience and helping to build customer loyalty. One approach has been to provide customer service personnel with technology such as tablets loaded with useful data and related AI apps, as well as apps designed to effectively close a sale and facilitate immediate delivery. We see this, for example, in Chapters stores. With so many companies not yet totally online, customer service has been expanded to include a variety of new AI technologies and the means to deliver them. The latest trend includes the use of wireless technologies that can track customer movements, including when they enter the store, so that sales personnel can approach them knowing their interests and preferences.

One lesson that has been learned is that, in many cases, direct human interaction is necessary before a deal is closed. This means that the technology must remain in the role of supporting the human activity rather than replacing it. The strategic issue has been to define the best mix of human and technological involvement – the orchestration – in the process.

This is a process requiring continuous improvement which, in turn, requires that the actions of competitors must be closely watched to maintain or build on product differentiation.

Recent Gartner surveys show that customer interaction is likely to be a major part of AI implementation. "At a recent conference, Gartner vice president and analyst Janelle Hill noted that a range of AI technology projects is underway in many enterprises and said that chatbots may be among the first that organizations have implemented.

"The fact that companies such as Amazon have done some of the early work to make chatbot engines such as Amazon Lex available to enterprises has probably given a leg up to these early efforts.

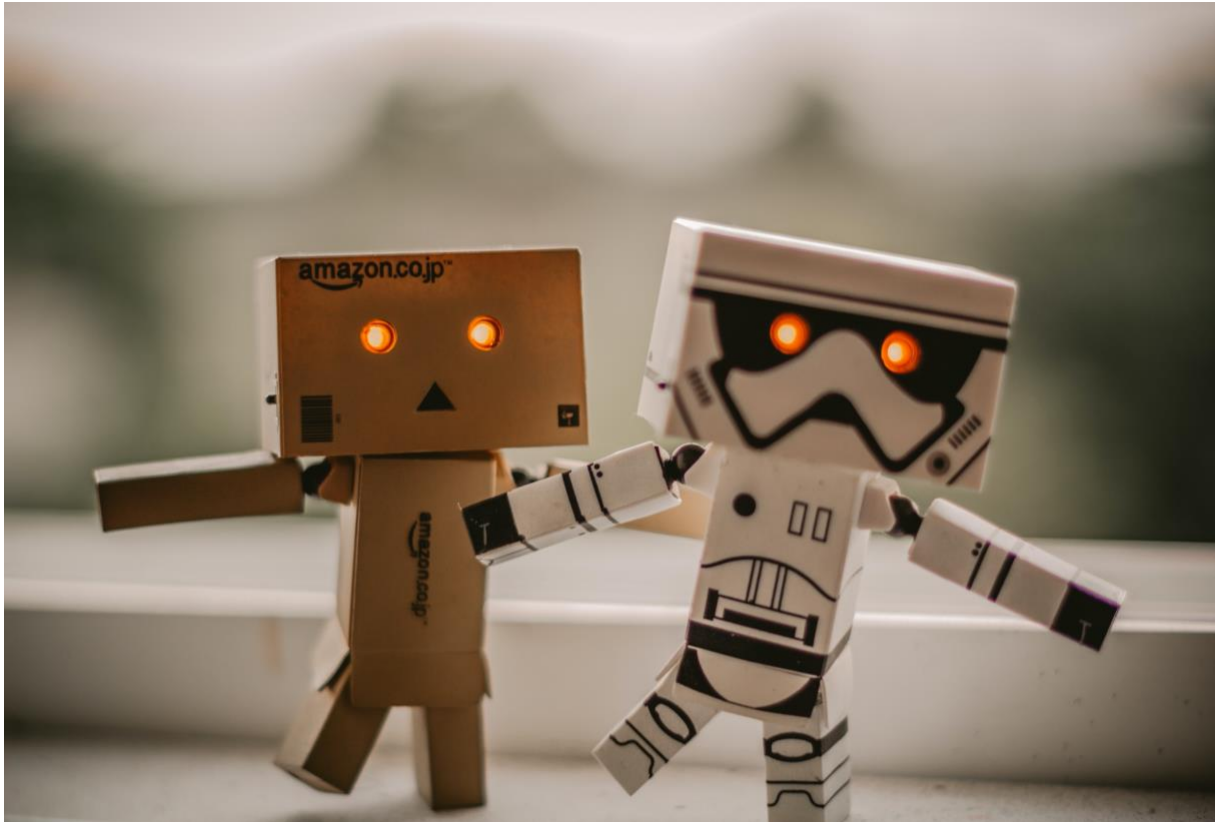
"But the big breakthrough in this area is still five to ten years away, Hill said, and CIOs should reset expectations with their boards. In 2017, 3% of customer service interactions were handled by conversational agents. She expects that number to rise to 30% by 2023."⁵

While powerful, modern AI has its limitations. For example, humans are better than machines at empathizing. Customers act differently with humans than they do with machines. Humans are better than machines in establishing the context of particular purchases. For example, wedding and anniversary gifts call for different sensitivities than many other more routine

purchases. Machines, on the other hand, are better at finding nuances in data being used, in determining product categories for particular market segments, even in determining customer clothing sizes.

Clearly, then, human and machine activities must be carefully thought out and implemented. Experience has shown that these activities should be as discrete as possible, so that they don't overlap.

AI and Automation



The most common approach to AI implementation is to approach it as an exercise in automation. Companies look to the processes in their organization and decide which ones can be automated, thus removing or reducing the human content and saving money.

Over one-third of respondents to a recent Consumer Technology Association (CTA) survey say they plan to automate accounting tasks. McKinsey & Co estimates that about 20% of the tasks in a typical recording and reporting cycle can be automated and nearly 50% of those tasks can be mostly automated. "CIOs could consider looking at the ways their accounting department collects, processes and reports financial data. For example, many firms have been automating the process of producing and submitting regulatory filings."⁶

While this approach can be useful, and perhaps even a way to start, Gartner, in their release "How to Build an AI Business Case,"⁷ points out that it is a mistake to stop there. They argue

that many organizations are missing the best of what AI has to offer. That the way to approach AI is to find ways in which human effort can be augmented. That involves looking at decisions that need to be made and considering how AI can help, rather than looking at processes that can be automated to reduce human involvement.

“The mindset shift required for AI can lead to “cultural anxiety” because it calls for a deep change in behaviors and ways of thinking.”⁸

AI and Accounting

The accounting profession is gearing itself for a major upheaval because of the implementation of artificial intelligence. The massive changes on the way – and already happening – are truly impressive. A recent report by PWC⁹ makes this clear.

In a global sense, the report states that GDP will be up by 14% by 2030 as a result of AI. A high portion of this growth will come from the replacement of workers in routine jobs by AI, something which is not new for technology but will be speeded up and enhanced with AI. And there will be new jobs for those who must manage and supervise the AI applications.

The impact of AI by augmenting or replacing humans is well known. The PWC study goes a lot further. To illustrate, it includes the following example of an AI application:

"An online insurer has leveraged an AI bot to automate the claims process from beginning to end. Instead of the days or even months it traditionally took to settle a claim, the bot is able to complete the entire pipeline from claims receipt, policy reference, fraud detection, payout and notification to customers in just three seconds."¹⁰

Both accountants and auditors are deeply affected by this kind of application. Both are required to have a knowledge of the control system. Since this control system has been placed entirely under the actions of an AI bot, the accountants and auditors need to have a good understanding of how that bot works – both in principle and in practice. They need to know how to test the effectiveness of that bot.

Multiply this by thousands of AI bots and you have an appreciation of why people are calling the AI revolution transformative.

A recent Gartner survey showed that 4% of companies have implemented AI and 46% plan to do so. That shows two things: AI is in its infancy and interest in it is strong.

How to actually implement AI is an open question. Companies can develop it on their own, but that's really expensive and requires a major effort. Or they can outsource it from providers like Amazon or Google. A third approach is to buy it from their software providers, which involves waiting until they offer it and then determining if it fits their organization.

The latter approach is bound to be quite popular for the larger organizations and many medium ones that use SAP or Oracle, because a great many already use one or the other. Also, typically, SAP or Oracle will usually have invested in learning about the needs of the company and can help develop solutions that will most likely fit.

Most companies will not build their own AI apps. So, under either of the other approaches, the issue will be how to establish a competitive advantage. Forrester Research's Brandon Purcell has the answer to that issue: data will be the key source of competitive differentiation in the world of AI. Emerging data sources, innovative data transformations and business-infused data understanding will lead to better models and, ultimately, better results from AI.

AI and Analytics

Given the importance of data, a powerful use of AI is in autonomous data analytics. The word "autonomous" implies that the analytics are able to stand on their own – they are able to make their own decisions. This is what is happening with the help of AI and machine learning.

Companies have more data available to them than at any time in history. That data is of little use, however, unless it is analyzed to yield useful insights and prospective information. Also, the analysis must go a lot further than simply being sufficient to support a particular hypothesis. Rather, it must be mined to yield the secrets and lessons it holds.



Autonomous analytics, aided by AI, supports that approach by being able to recognize relationships in the data that can then be used to formulate further lines of enquiry. That's where machine learning comes in. All of this is automated. In addition, the analysis can encompass very large bodies of data, maybe even all the data available to a particular company.

Techniques for implementing such systems are advancing quickly and several companies have been reporting useful results.

Digital Transformation

Artificial Intelligence adoption is playing a major role in the implementation of digital transformation by businesses. The hype is strong and expectations are running high.

Pew Corp did a study asking some "979 technology pioneers, innovators, developers, business and policy leaders, researchers and activists" to answer the question, "As emerging algorithm-driven artificial intelligence (AI) continues to spread, will people be better off than they are today?"

“The experts predicted networked artificial intelligence will amplify human effectiveness but also threaten human autonomy, agency and capabilities. They spoke of the wide-ranging possibilities: that computers might match or even exceed human intelligence and capabilities on tasks such as complex decision-making, reasoning and learning, sophisticated analytics and pattern recognition, visual acuity, speech recognition and language translation.”

Pew Corporation found a variety of concerns and opportunities for humans, but all agreed that massive change is in the works, with some saying that such change is likely to extend over the next 50 years or more. The change will not come at once, meaning that humans will need to be very responsive in dealing with the change as it comes. In the process, some people, including accountants, will be displaced and left behind, which, in turn, means social unrest and more populist uprisings. It's a massive challenge calling for restructuring of our social, educational and government institutions.

Pew's overall conclusion: “Experts say the rise of artificial intelligence will make most people better off over the next decade, but many have concerns about how advances in AI will affect what it means to be human, to be productive and to exercise free will.”¹¹

End Notes

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⁷ “How to Build a Business Case for AI,” op cit.

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¹¹ “Artificial Intelligence and the Future of Humans” (Washington: Pew Research Centre, 2018), <https://www.pewresearch.org/internet/2018/12/10/artificial-intelligence-and-the-future-of-humans/>.